KURMANOV, M I

Scientific-Technical Conference on Metallography and Heat Treatment, Khar'kov

at first and then slowly approach the respective value of the core. The structures of the work hardened layers obtained by shot peening and work hardening by rolls differ considerably.

Candidate of Technical Sciences M. I. Kurmanov and Engineer Sh. R. Dobrushina reported on the high strength alloy steel 15GDYuT (0.13-0.17% C, 1.2-1.5% Mn, 0.15-0.30% Si, 0.30-0.40% Cu, 0.08-0.10% Ti, 0.04-0.08% Al) which was developed by the Ukrainian Research Institute; manganese-titanium steel was alloyed with copper for increasing the strength and the stability against corrosion and with aluminium for obtaining finer grain so as to obtain a high impact strength at low temperatures. For elucidating the mechanism of the influence of titanium on the properties of steel, a phase analysis method was used by means of which it became possible to establish that the presence of titanium in the solid solution causes brittleness of titanium steels after rolling and such steels must be normalised. The proposed steel 15GDYuT is intended to

Card 5/6 be used in the heat treated state in the form of thick

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sheets. A particular advantage of this steel is its high impact strength at 80 to 100°C. It is somewhat cheaper than some steels used for the same purpose. Also, this steel has favourable strength properties, good weldability and toughness, particularly at low temperatures, and also it has little inclination to ageing. This steel is at present being further tested to elucidate its behaviour in complex stress states and under vibration loads. Furthermore, the weldability and the optimum chemical composition are being investigated in great detail.
Candidate of Technical Sciences N. V. Volobuyev (KhPI) in his paper "Influence of Niobium on the Properties of Manganese Steel" dealt with investigations on the influence of niobium on the temper brittleness and on the mechanical properties of manganese steel. It was established that 0.20-0.48% Nb reduces the temper brittleness of manganese steel, which is one of the cheapest alloy steels with high strength properties. If the Nb content exceeds 0.48%, the impact strength of manganese steel melted by the normal method decreases, since in this case niobium causes the formation of course carbides. Niobium has a still

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KURMANOV, M.I., kand. tekhn. nauk; SOLOV'YEVA, G.G., inzh.

Significance of testings on the resilience of sheet steel and discussion of results in determining its quality. Trudy Ukr. nauch.-issl. inst. met. no.4:221-231 '58. (MIRA 12:3)
(Sheet steel--Testing)
(Metallurgical plants--Quality control)

AUTHORS: Kurmanov, M.I., Navrotskiy, I.V., Yanushevskaya, Zh.F. 32-1-40/55

TITLE: A Device for the Investigation of the Damping of Oscillations in Metals (Ustanovka dlya issledovaniya zatukhaniya kolebaniy v metallakh).

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 1, pp. 101-103 (USSR)

ABSTRACT: In this paper the construction of such a device is described and examples for the computation of the logarithmic damping decrement of oscillations are given. The principal part of this device consists of a firmly welded frame which is suspended from the ceiling by means of a rope. In the upper part of the frame there is a clamp, by means of which the sample is fastened, which has the form of a metal strip, and on which oscillations are measured. At the edge of the sample a magnet is mounted in a metal setting. Under the magnet, on a table, there is a coil with 600 windings. By means of a screw it is possible to adjust the distance between the magnet and the coil. By the micrometer screw the initial bend-through of the sample is fixed by the magnet. When switching

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A Device for the Investigation of the Damping of Oscillations in Metals

32-1-40/55

off the magnet the sample begins to oscillate; oscillations slowly die down while the current formed in the coil is led to the oscillograph, and a vibrographic recording is made. The logarithmic damping decrement is then computed according to the following formula: $\delta = \frac{\ln 2}{n - 1}$,

where n denotes the number of vibrations. There are 5 figures.

ASSOCIATION: Ukrainian Scientific Research Institute for Metals (Ukrainiskiy nauchno-issledovatel'skiy institut metallov).

AVAILABLE: Library of Congress

Card 2/2 1. Oscillations-Control systems

80772

S/137/60/000/02/07/010

18.1150

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No 2, p 261, # 3886

AUTHORS: Kurmanov, M.I., Dobruskina, Sh.R., Rabinovich, A.G.

TITLE: High-Strength Low-Alloy 15ГДЮТ (15GDYuT) Grade Steel

PERIODICAL: Sb. tr. Ukr. n.-i. in-t metallov, 1959, No 5, pp 114 - 136

TEXT: A new grade of low-alloy 15GDYuT steel was developed containing (in %): C 0.13-0.18, Mn 1.20-1.50, Si 0.15-0.37, Cu 0.30-0.50, Ti 0.06-0.10; Al_{met} 0.04-0.08. Seven experimental smelts of the new steel grade were made in a 10-ton basic open-hearth furnace and rolled into sheets of 12 - 36 mm thickness. It was established that 15GDYuT steel after normalization possessed the following properties: σ_b = 57.2 kg/mm^2; σ_s = 43.5 kg/mm^2; δ = 28.7%; ψ = 74.7%; a_k = 20.2 kgm/cm^2; a_k = 8.5-9.9 kgm/cm^2 at -80°C. After quench-hardening from 900°C with tempering at 560°C the steel possessed σ_b = 55.2 kg/mm^2,

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High-Strength Low-Alloy 15ГДЮ Т (15GDYuT) Grade Steel

σ_s = 44.3 kg/mm^2; δ = 17.8%; Ψ = 67.6%; a_k = 20.8; a_k = 7.7 kgm/cm^2 at -80°C. It is recommended to use 15GDYuT steel in the form of thick sheets in heat treated state. This steel grade is particularly fit for operation at low temperatures down to - 100°C. There are 10 bibliographic titles.

T.F.

Card 2/2

KURMANOV, M.I., kand.tekhn.nauk; MAVROTSKIY, I.V., inzh.; FILIPPOVA, T.F., inzh.

Effect of arsenic on the properties of M16C steel (state standard 6713-53). Trudy Ukr.nauch.-issl.inst.met. no.5: 187-200 '59. (MIRA 13:1)
(Steel--Testing) (Arsenic)

KURMANOV, M.I., kand.tekhn.nauk; LEVE, N.F., prof.; SOLOV'YEVA, O.G., inzh.; GUREVICH, A.B., kand.khim.nauk

Effect of arsenic on the reversible temper brittleness of alloyed steels. Trudy Ukr.nauch.-issl.inst.met. no.5:202-211 '59. (MIRA 13:1)

(Steel--Brittleness) (Arsenic)

S/137/60/000/02/08/010

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No 2, p 261, # 3887

AUTHORS: Kurmanov, M.I., Dobruskina, Sh.R., Leve, N.F., Gurevich, A.B.

TITLE: Phase Distribution of Titanium and Its Effect on the Properties of High-Strength Low-Alloy 15ГДЮТ (15GDYuT) Steel

PERIODICAL: Sb. tr. Ukr. n.-i. in-t metallov, 1959, No 5, pp 212 - 222

TEXT: Investigations were carried out into phase distribution of Ti and Al in 15GDYuT steel and into the effect of these elements on the steel properties. Specimens were cut out of hot-rolled 24-mm thick sheets in the after-rolling and after-normalization state at 800°- 1,200°C. The steel was composed as follows (in %): C 0.10-0.13; Mn 1.20-1.34; Si 0.13-0.17; Cu 0.36-0.39; Ti_{tot} 0.086-0.081; Al_{tot} 0.11-0.053; N 0.024-0.038. It was established that in hot-rolled steel 85% of the total Ti amount (0.1%) was contained in the carbide phase and 15% in the solid solution. In steel normalized at 800°, 900° and 1,000°C, the

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S/137/60/000/02/08/010

Phase Distribution of Titanium and Its Effect on the Properties of High-Strength Low-Alloy 15ГДЮТ (15GDYuT) Steel

whole Ti amount was contained in the carbide phase; after normalization at 1,200°C the carbide phase contained 70% and the solid solution 30% of the total Ti amount. There are 13 bibliographic titles.

T.F.

√B

Card 2/2

KURMANOV, M.I., kand.tekhn.nauk; IMSHENETSKIY, V.I., inzh.; SOLOV'YEVA, G.G., PIKULINA, L.M.

Investigating causes of the low toughness of thick sheet (up to 50mm.) M16C steel corresponding to State Standard 6713-53. Trudy Ukr.nauch.-issl.inst.met. no.5:223-233 '59. (MIRA 13:1)

1. Ukrainskiy institut metallov i Zavod im. Voroshilova.
(Sheet steel--Testing)
(Steel--Metallography)

KURMANOV, M.I.; NAVROTSKIY, I.V.; TOMENKO, Yu.S.

Evaluation of the cold brittleness of structural sheet steel. Zav. lab. no.11:1370-1372 '59. (MIRA 13:4)

1.Ukrainskiy nauchno-issledovatel'skiy institut metallov.
(Steel --Brittleness)

69334
S/129/60/000/05/008/023
E193/E283

18 1110

AUTHORS: Kurmanov, M. I., and Rabinovich, A. G., Candidates of Technical Sciences, and Dobruskina, Sh. R., Engineer

TITLE: Low-Alloy, High Strength Steel Plate

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, Nr 5, pp 30, and 35-39 (USSR)

ABSTRACT: The object of the investigation, described in the present paper, was to develop a low-alloy steel having a yield point not lower than 40 kg/mm^2. Manganese and small quantities of titanium aluminium, and copper were used as the alloying additions, titanium being added not only to increase the strength of steel, but also to reduce the oxygen content, improve its weldability, and reduce the grain size. The experimental melts were carried out in a 250 kg induction furnace with a basic lining. 65 kg ingots were forged to bars (16 x 70 mm cross-section) and then normalized at 900°C. The results of mechanical tests showed that steels, containing 0.05 to 0.15% Ti, all had the yield point higher than 40 kg/mm^2; further addition of titanium decreased the ductility and toughness of steel without appreciably increasing its strength. The mechanical properties

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Low-Alloy, High Strength Steel Plate

of steel were not affected by its aluminium content; however, with the aluminium content lower than 0.05%, coarsely-crystalline ferrite was obtained, as a result of which the critical temperature of cold brittleness was raised. With the increasing C + 0.25 Mn content, UTS (σ_b) increased more rapidly than the yield point (σ_T); consequently, with the increasing magnitude of C + 0.25 Mn, the σ_T/σ_b ratio decreased. On the basis of these preliminary experiments, the following composition was chosen for the proposed, low-alloy, high strength steel 15GDYuT: 0.13 to 0.18% C, 1.2 to 1.5% Mn, 0.15 to 0.37% Si, 0.3 to 0.5% Cu, 0.06 to 0.1% Ti, 0.04 to 0.08% Al (metallic) and no more than 0.04% S and P. No difficulty was experienced in making steel within the specified composition limits, as is shown by the results of chemical analysis of five experimental melts of this steel, given in Table 1; (the last column of this table gives the sum of the carbon content, plus a quarter of the manganese content). Fig 1 shows

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Low-Alloy, High Strength Steel Plate

how σ_T, σ_b (kg/mm^2) elongation δ, reduction of area, ψ, impact strength a_k (kgm/cm^2), and the σ_T/σ_b ratio (right-hand scale) varied with the varying C + 0.25 Mn content. Fig 2 shows the variation of impact strengths a_k (kgm/cm^2) as a function of test temperature ($^\circ$C), curves 1 to 4 relating to steel with the C + 0.25 mm content equal 0.43, 0.462, 0.447, and 0.547%, respectively. It will be seen that the impact strength of the steel under consideration at temperatures as low as -60°C is quite high, even when the C + 0.25 Mn content is relatively high. In the next chapter of the present paper, the effect of phase distribution of titanium on the properties of the investigated steel, is discussed. Steel 15GDYuT, containing more than 0.05% Ti, can be used only in the heat-treated condition, since steels of this type, in the hot-worked condition, are brittle; it has been postulated (Ref 2, 4) that this brittleness is due to the fact that all titanium present in the steel is in the solid solution; in the absence of experimental proof of this hypothesis, the present authors studied

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Low-Alloy, High Strength Steel Plate

the constitution of two steels containing 0.04 and 0.15% Ti, in the hot-worked and normalized (at 900°C) condition. The results are given in Table 2 under the following headings: number of the melt; carbon content, %; titanium content, %, (a) total, (b) in carbo-nitrites, and (c) in solid solution, and impact strength, a_k (kgm/cm^2) for (1) hot-worked steel and (2) normalized steel. It will be seen that only traces of titanium were found in the ferrite of steel with less than 0.05% titanium; this quantity of dissolved titanium did not affect the impact strength and normalizing treatment was unnecessary. At higher titanium content, part of this element is precipitated as carbo-nitrites, part is in solid solution; normalization of the hot-worked material brings about precipitation of dissolved titanium, as a result of which the impact strength increases from 1.5 to 30.2 kgm/cm^2. The effect of the normalizing temperature on the mechanical properties of steel 15GDYuT is illustrated in Fig 3, where σ_T, σ_b, (left-hand scale), δ, a_k (right-hand scale), and hardness HRB

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(Rockwell B, scale on the extreme right) are plotted against the normalizing temperature (°C). To determine the phase distribution of titanium after quenching and tempering, samples of melt 373, water-quenched from 1200°C and then maintained for 2 h at temperatures between 300 and 1100°C, were examined. The maximum quantity of titanium dissolved in ferrite was found in the quenched specimens; on re-heating (starting from about 600°C), titanium was rapidly rejected from the solid solution, the minimum quantity of this element being retained in the solution after treatment at 900°C. The laboratory investigation was followed by full-scale industrial trials, the results of which are discussed in the last chapter of the present paper. Seven batches of steel, made in an open-hearth furnace, were rolled to plate 12, 24, and 36 mm thick, and then chemically analysed and subjected to dilatometric and mechanical tests. The test pieces for mechanical testing were either normalized at 900°C, or quenched from 900°C and tempered at 600°C.

Card 5/8 The results of tensile tests are given in Table 3 under

Low-Alloy, High Strength Steel Plate

the following headings: direction of testing (normal to the direction of rolling; parallel to the direction of rolling); thickness of the plate, mm; mechanical properties - σ_s (yield point, kg/mm^2); σ_b (UTS, kg/mm^2); σ_s/σ_b; δ, (elongation, %); ψ (reduction of area, %). It will be seen that the investigated steel is characterized by high strength combined with high ductility, irrespective of whether tested in the direction parallel or normal to the direction of rolling; this small degree of anistropy of the mechanical properties is attributed to the beneficial effect of titanium on the grain size of the investigated steel. The effect of the Σ(C + 0.25 Mn) on the mechanical properties (in the direction normal to the direction of rolling) is shown in Table 4, under the following headings: average value, %, of Σ (C + 0.25 Mn); σ_s, σ_b, and δ for plate of various thickness. The results of dynamic bending tests are given in Table 5, showing: direction in which the test

Card 6/8 pieces were cut from the plate (transverse; longitudinal);

Low-Alloy, High Strength Steel Plate

thickness, mm of the plate; impact strength a_k (kgm/cm^2) at various temperatures; a_k after strain ageing. (In these tests the specimens were bent through 180° over a radius equal two thicknesses of the specimen; after the dynamic test, the test pieces were bent further until their ends met; only in a few cases of extra wide (100 mm) test pieces, small cracks were detected after testing; strain-ageing tests were carried out according to GOST 7268-54). The properties of steel in the fully heat-treated condition (quenched from 900°C and tempered at 600°C), determined in the direction normal to the direction of rolling, are given in Table 6, where the first column shows the thickness of the specimen. The impact strengths of steel after the same treatment is given in Table 7 under the following headings: thickness, mm, of the plate; a_k at various temperatures; a_k after strain ageing. The results of other (welding, Bending, piercing) tests showed that in this respect, steel GDYuT is comparable with other steels (10KhGSMD or 10KhSMD), whose price per ton is

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E193/E283

Low-Alloy, High Strength Steel Plate

200 or 120 roubles higher. There are 3 figures, 7 tables and 5 references, 1 of which is Soviet 1 English and 3 German.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut metallov (Ukrainian Scientific Research Institute of Metals)

Card 8/8

KURMANOV, M.I.; NAVROTSKIY, I.V.; TOMENKO, Yu.Sh.; DOBRUSKINA, Zh.R.

Structural strength of certain high-resistance low-alloy steels. Trudy Ukr. nauch.-issl. inst. met. no.6:217-229 '60. (MIRA 14:3)

(Steel alloys--Testing)

S/133/60/000/007/010/016

AUTHORS: Kurmanov, M.I., Candidate of Technical Sciences; Filippova, T. F., Engineer

TITLE: The Effect of Arsenic on Carbon- and Alloyed Structural Steels

PERIODICAL: Stal', 1960, No. 7, pp. 637 - 642

TEXT: In order to investigate the effect of arsenic on carbon-containing and alloyed structural steels 14 types of these steels (ГОСТ 4543-48 = GOST 4543-48 and ГОСТ 1050-52 = GOST 1050-52) were melted in induction furnaces. Structural examinations proved that arsenic induced the development of streak structure in the steel, which could not be eliminated completely by conventional heat treatment and the homogenisation of the steel at 1,200°C for 10 hours with a subsequent normalisation. It was found that the arsenic content raised the resistance of the steel somewhat, whereas it decreased plasticity and also to a slight extent its impact strength. Arsenic in a quantity below 0.3% changed the critical points. In steels alloyed with Cu, Mn and Mo, arsenic raised the critical points, in nickel alloys only A_{c_3}, in silicon A_{c_3} and A_{r_3}, whereas no change was observed in the crit-

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The Effect of Arsenic on Carbon- and Alloyed Structural Steels

ical points of steels alloyed with chrome and phosphor. Reversible and irreversible brittleness were also increased by arsenic. The increase in irreversible tempering brittleness was mainly found in alloyed steels, where not only the decrease in impact strength was observed, but also the shift of the minimum to the direction of higher temperatures, most probably as a result of the lower content and the higher stability of the residual austenite. The kinetics of the isothermal decomposition of austenite were examined by Akulov's method and it was established that the isothermal decomposition curves display a stable character when the As content was below 0.3%, the kinetics of austenite transformation, however, underwent considerable changes. In steels alloyed with Ni, Si, P, Mn, Cr and Mo at temperatures below the zone of minimum stability of austenite, arsenic shortened the period of incubation and transformation and decreased the amount of residual austenite. In steel alloyed with Ni, Mn and Mo arsenic decreases the incubation period in the zone of minimum stablity of austenite. In steels alloyed with Si, P, Cu and Cr the incubation period will be longer. The analysis of the curves of isothermal transformation indicates that hardening properties are effected unfavorably by As. In cementation arsenic im-

The Effect of Arsenic on Carbon- and Alloyed Structural Steels

peded the carbonisation of steel and as a result of this the cemented layer was less saturated by carbon and its thickness was reduced (Ref. 15). When increasing the As content up to 0.31%, the hardness of the cemented layer increased somewhat, while the amount of residual austenite decreased. It was established by metallographical and X-ray structural analyses of the nitrided layer that during nitriding arsenic impeded the saturation of the steel surface by nitrogen. When applying arsenic-containing steels, the actual manufacture conditions and the purposes of the machine parts must be taken into account. There are 2 graphs, 1 set of photograph, 7 tables and 15 references: 11 Soviet, 1 English, 1 French and 2 German.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut metallov (Ukrainian Scientific Research Institute for Metals)

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SHNEYEROV, Ya.A.; LEPORSKIY, V.V.; KAZARNOVSKIY, D.S.; KOTIN, A.G.; KURMANOV, M.I.; SUKACHEV, A.I.; SLADKOSHTEYEV, V.T.; BUL'SKIY, M.T.; SVIRIDENKO, F.F.; SIDEL'KOVSKIY, M.P.; KOZHEVNIKOV, I.Yu., red.; BORODAVKIN, M.L., red. izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Converting phosphorous cast iron in open-hearth furnaces] Peredel fosforistykh chugunov v martenovskikh pechakh. Moskva, Gos. nauchno-tekhn. izd-vo po chernoi i tsvetnoi metallurgii, 1961. 256 p. (MIRA 14:8)

(Open-hearth process)

S/137/62/000/001/137/237
A052/A101

AUTHORS: Veselyanskiy, Yu. S., Golik, V. R., Kurmanov, M. I.

TITLE: Microfractographic study of steel fractures depending on the destruction temperature

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 32 - 33, abstract 1I217 (Sb. tr. Ukr. n.-i. in-t metallov, no. 7, 1961, 199 - 205)

TEXT: By the electronic microscopy method (by investigating titanium imprints with ЭМ-3 (EM-3) electronic microscope) the fracture of Menazhe samples made of normalized МСт3 (MSt3) steel destructed at temperatures from +90°C to -196°C were studied. On the basis of microfractographic study of the microstructure of fractures depending on the testing temperature, a criterion for the disposition of steel to the brittle destruction is suggested. The fractures are classified into the "semibrittle" ones (with a "wavy pattern") and the "brittle proper" ones (with "tongues"). There are 11 references.

T. Fedorova

[Abstracter's note: Complete translation]

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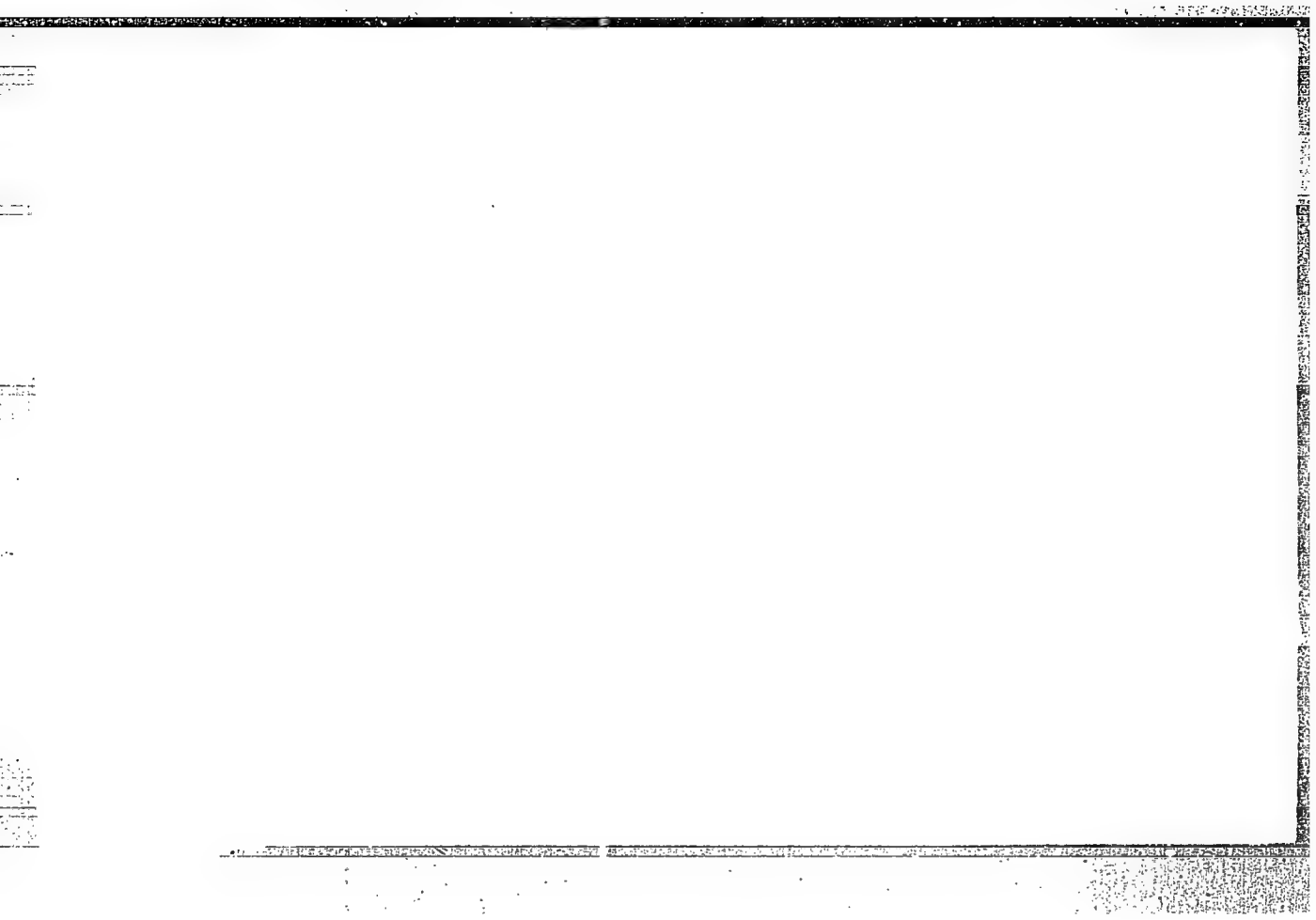
SANDLER, N. I., kand. fiziko-matematicheskikh nauk; MONAKHOVA, L. V., kand. tekhn. nauk; KURMANOV, M. I., kand. tekhn. nauk; ALEKSANDROV, P. A., doktor tekhn. nauk; SABIYEV, M. P., inzh.

Defects in manganese-aluminum steel slabs. Met. i gornorud. prom. no.1:62-66 Ja-F '63. (MIRA 16:4)

1. Ukrainskiy institut metallov.

(Steel ingots—Defects)



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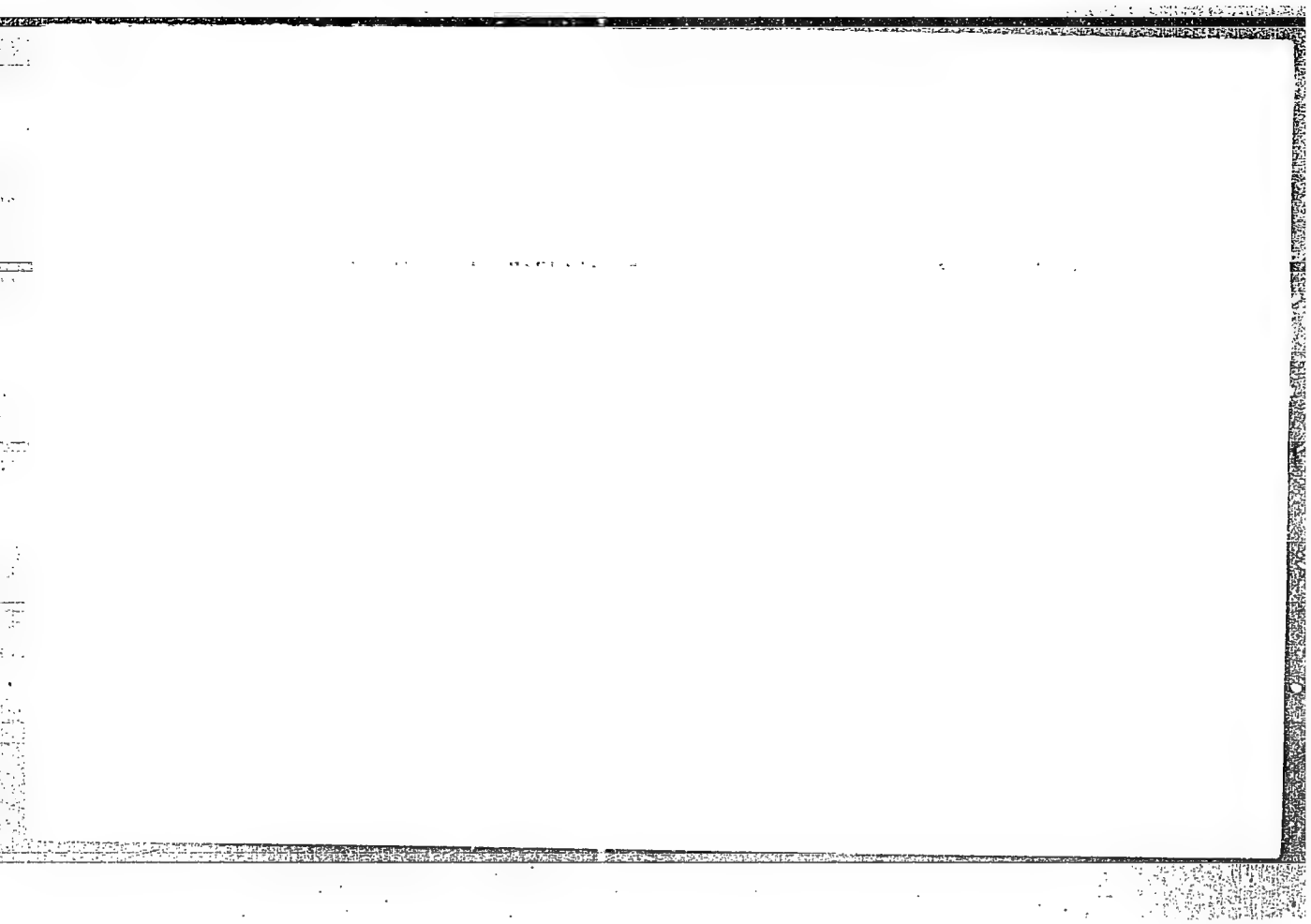

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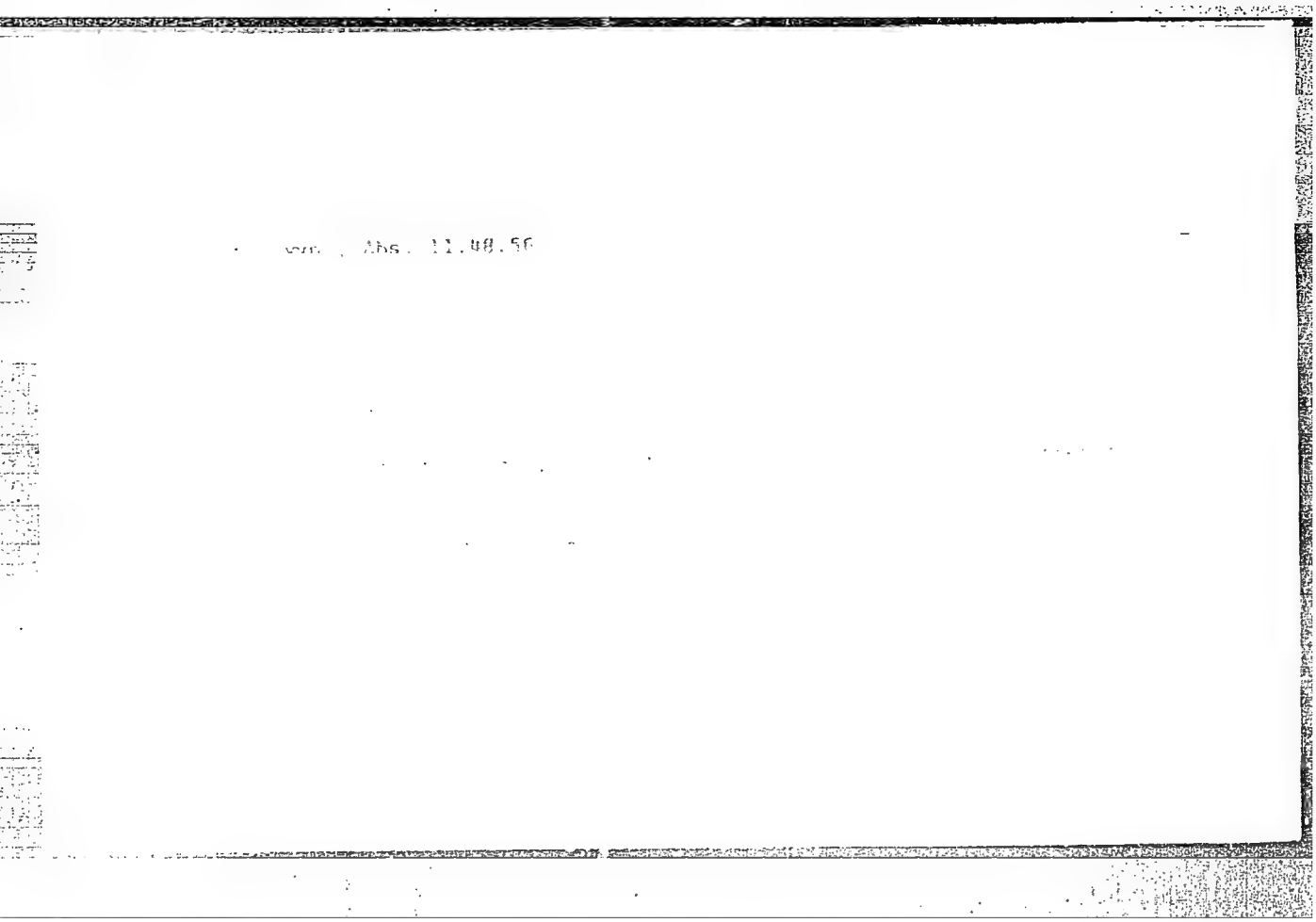
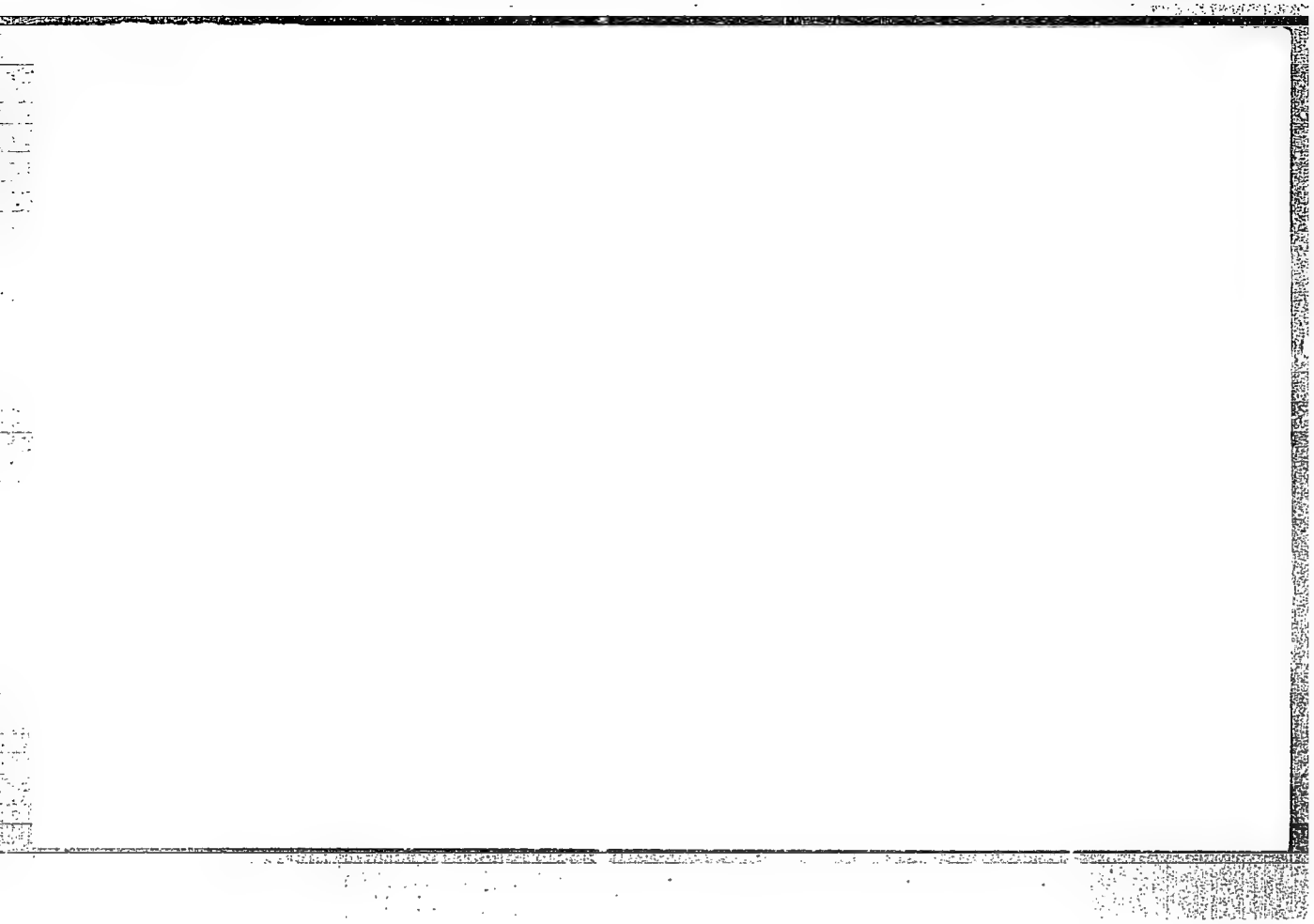
NAVROTSKIY, I.V.; SANDLER, M.I.; KURMANOV, M.I., kand. tekhn. nauk.

Nature of hardening low-alloy manganese steel by vanadium, niobium, and tungsten. Sbor trud. UNIIM no.9:377-393 '64
(MIRA 18:1)





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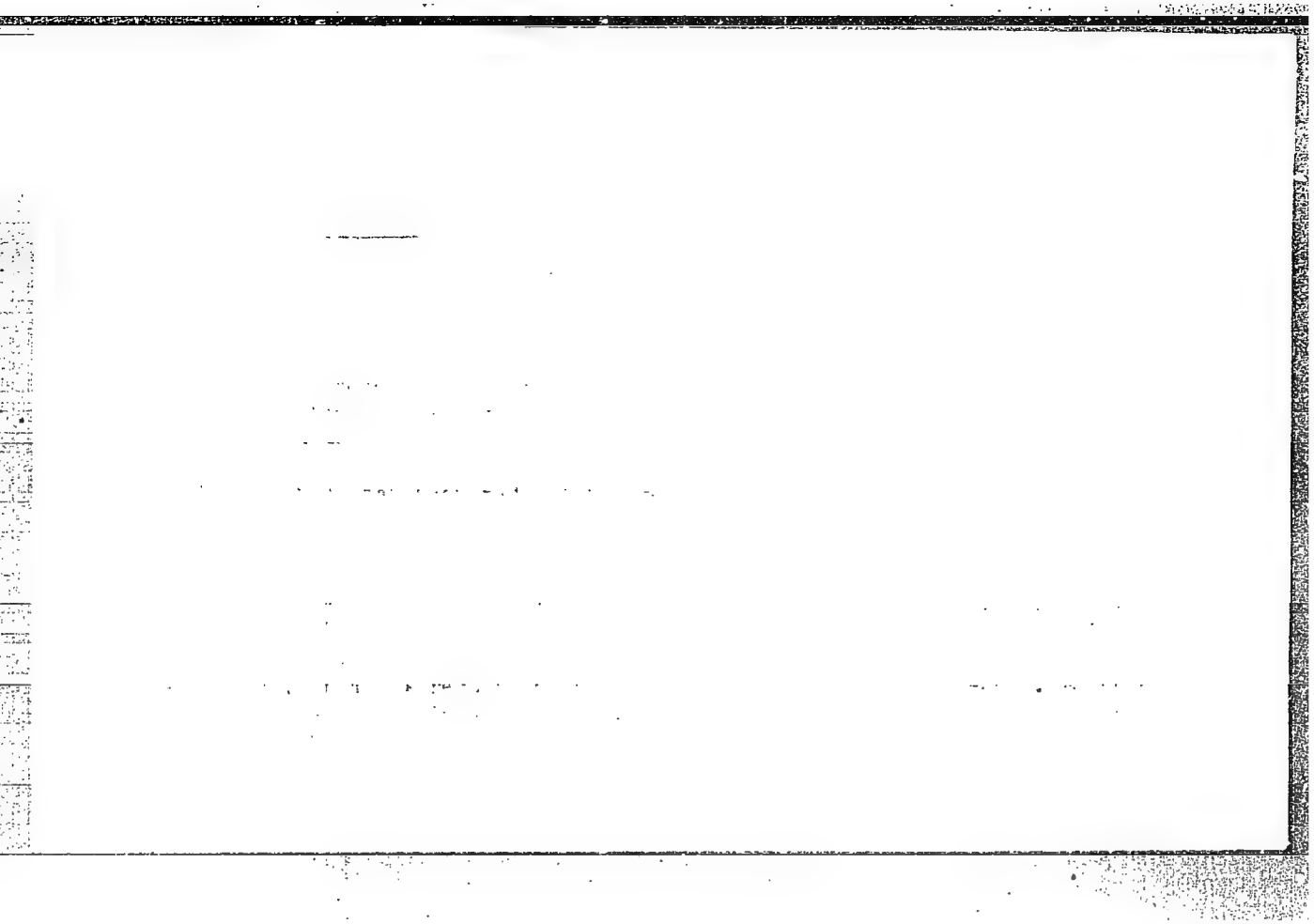

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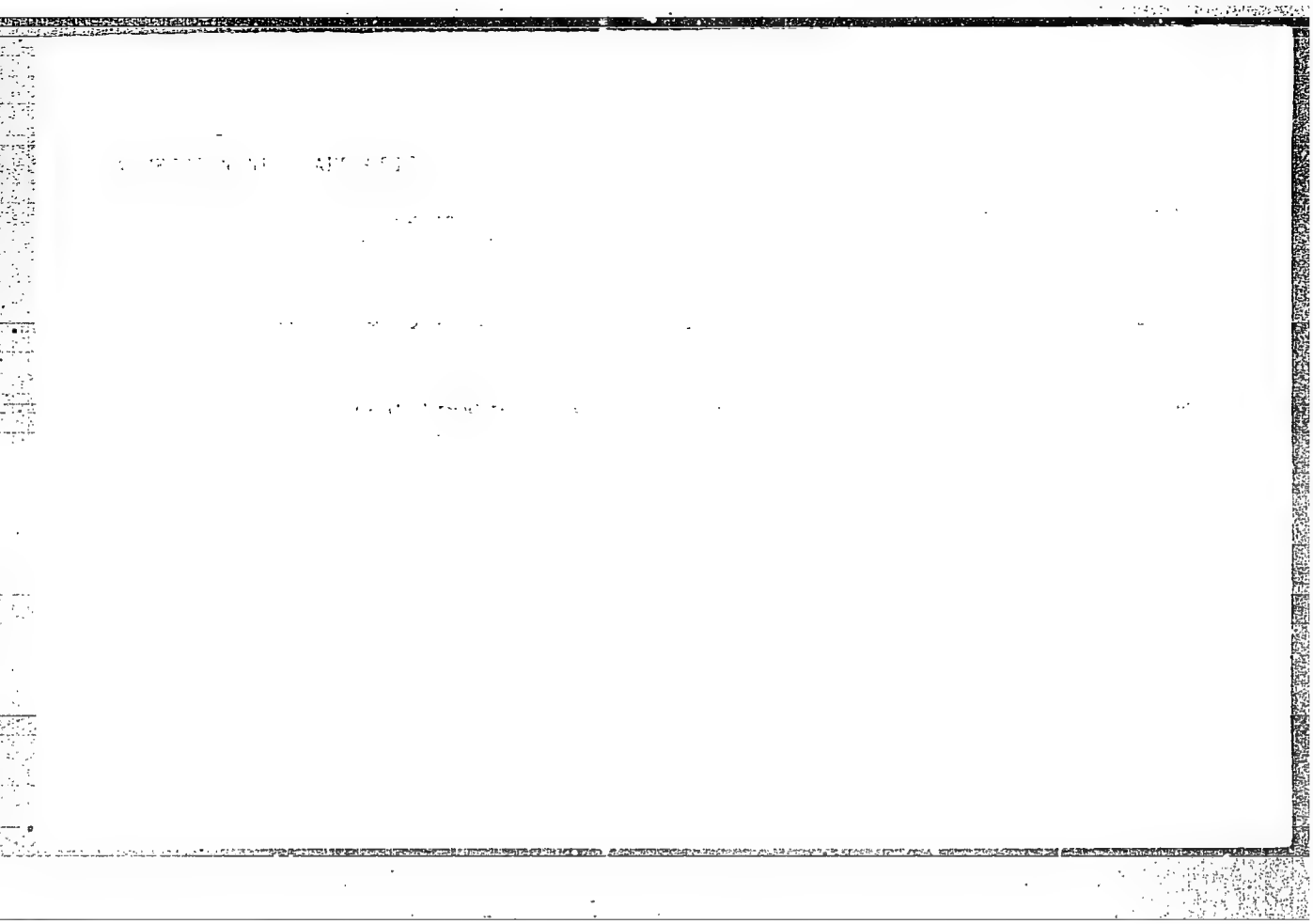

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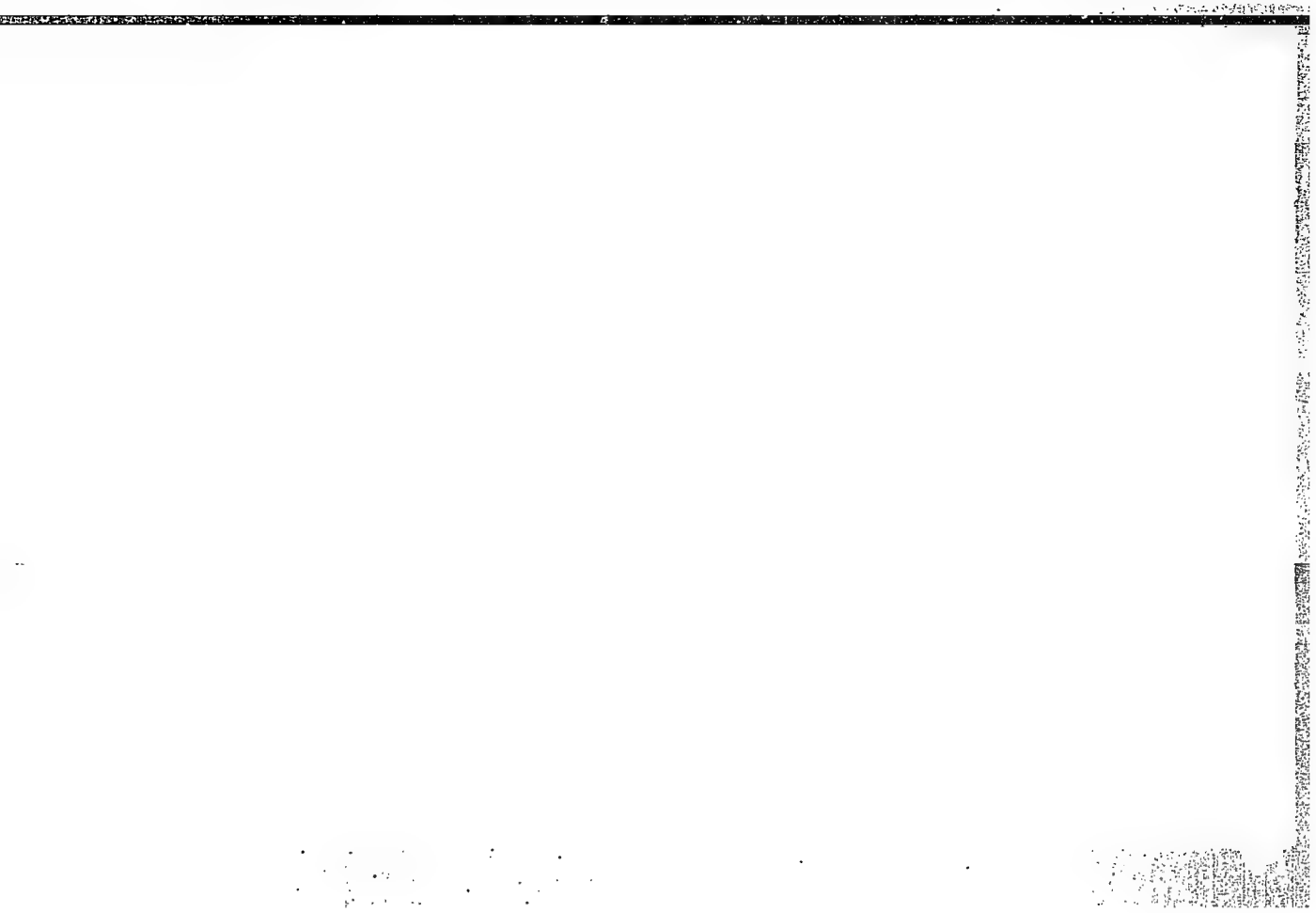

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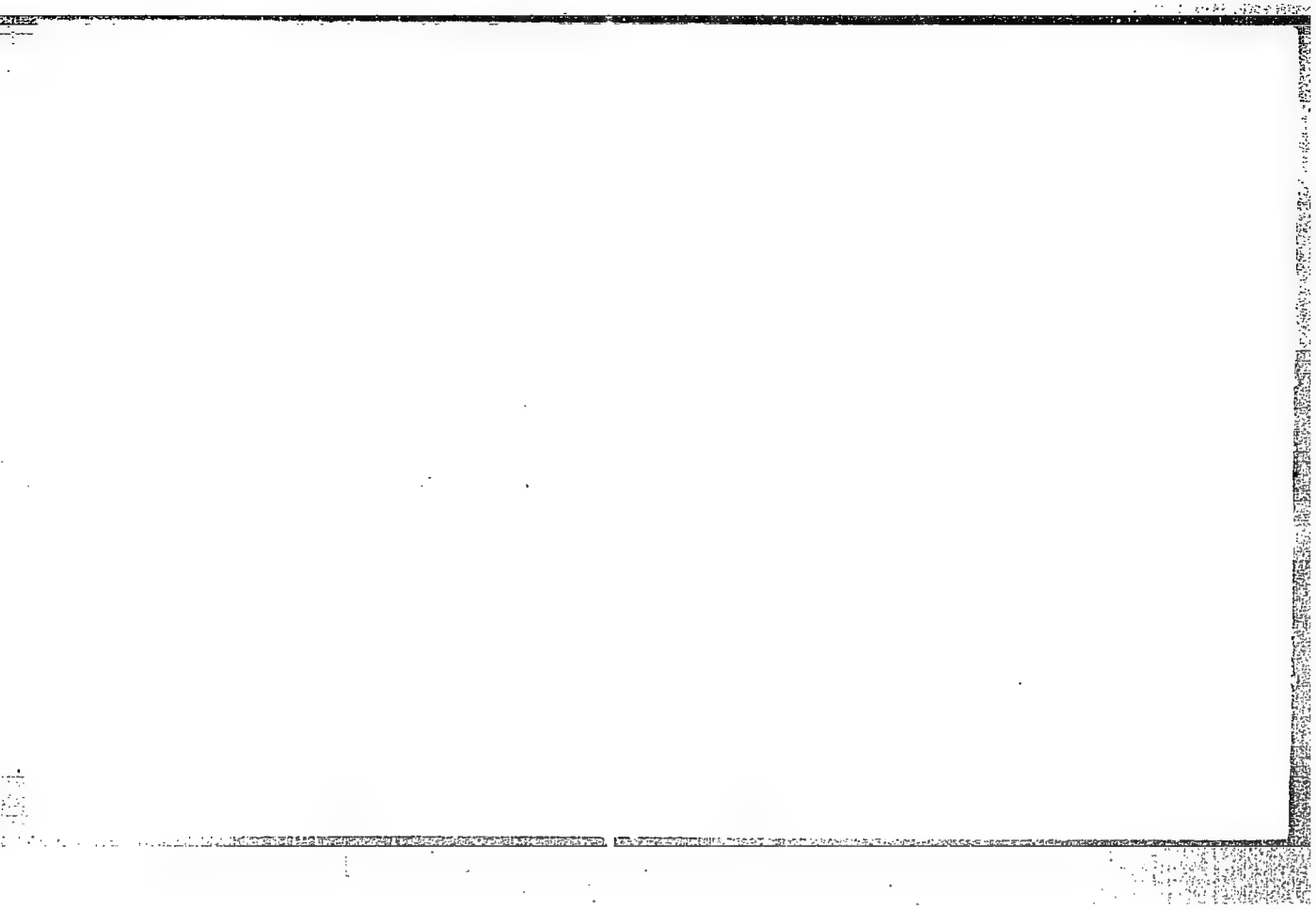

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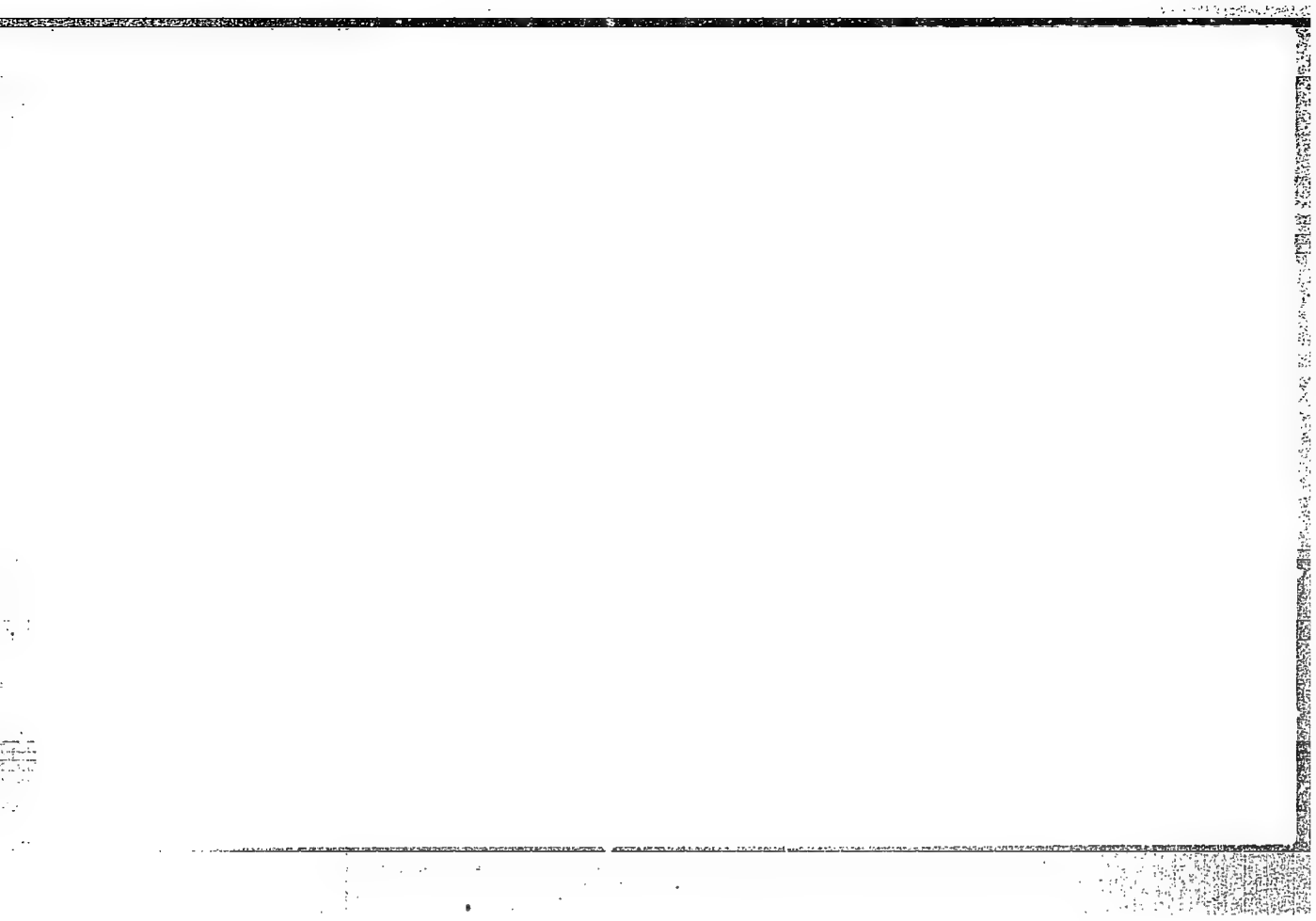

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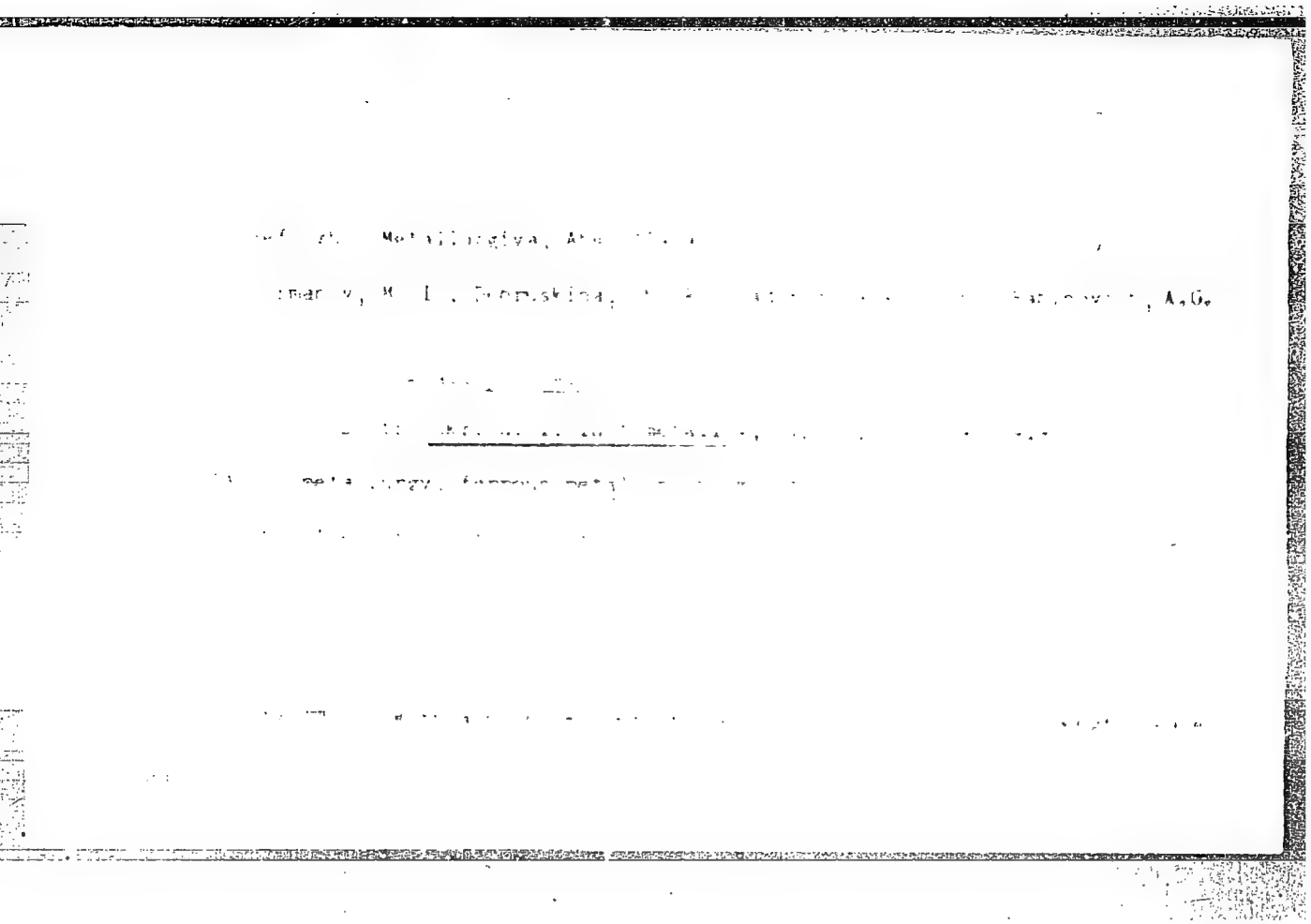

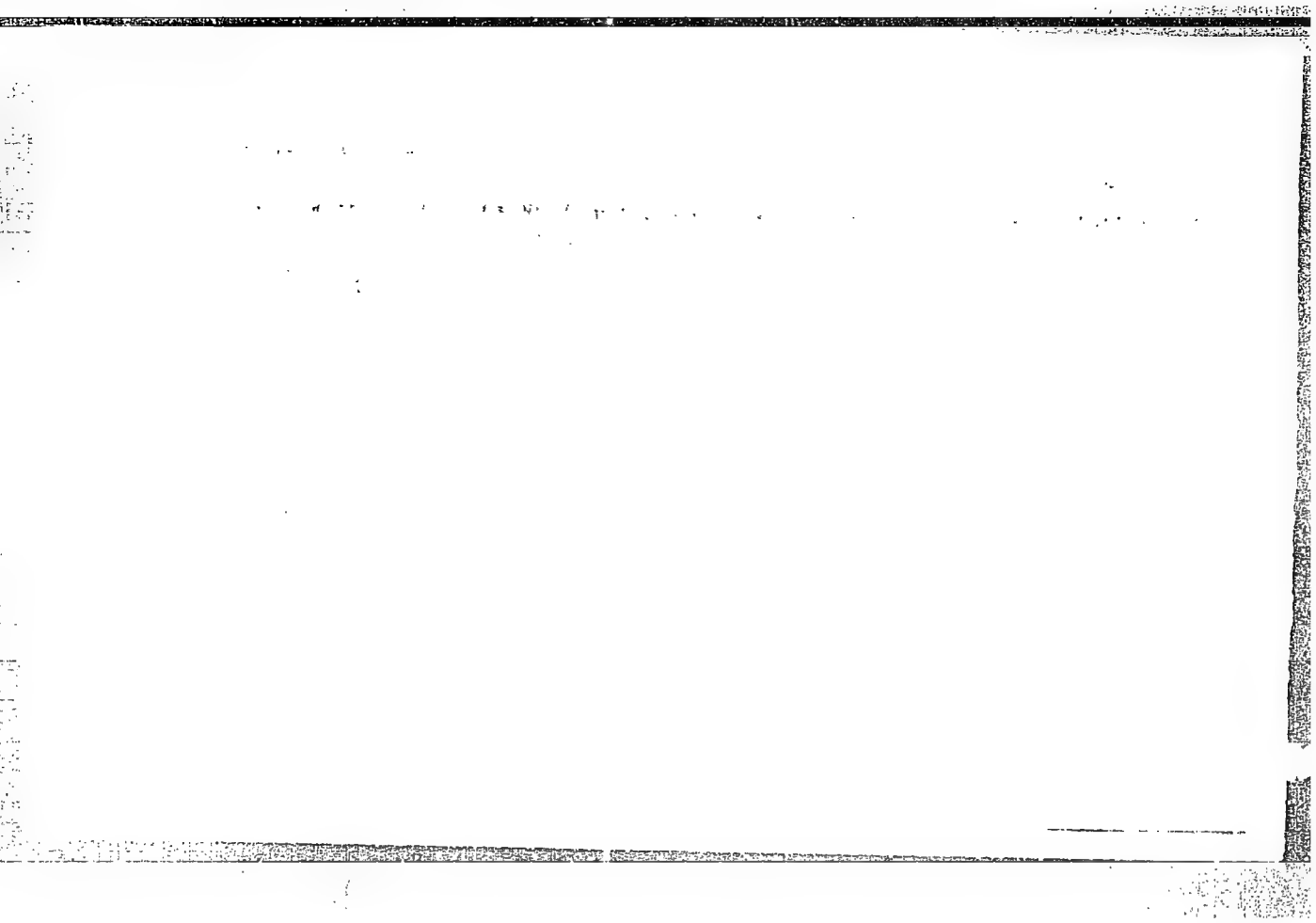

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Ref. zh. Metallurgiya, Abs. 4I302

KURMANOV, M.I.; DRYUKOVA, I.N.

Thermomechanical treatment of structural steel. Metalloved. i term. obr. met. no. 2:38-41 F '65. (MIRA 18:12)

1. Ukrainskiy nauchno-issledovatel'skiy institut metallov.

[redacted], N.N., [redacted]; SHIRENKO, G.I.; KURMANOV, M.I., kand. tekhn. [redacted], Kuybyshevskiy rukovoditel' rabochey

Effect of the cerium subgroup of rare-earth elements on the structure and properties of a carbon steel ingot. Sb. trud. UNIIM no.11[illegible]250-261 '65.

(MIRA 18:11)

KURMANOV, M.I.; DOBRUSKINA, Sh.R.

Conditions for obtaining a bainite structure in low-alloy steel during continuous cooling. Sbor.trud. UNIIM no.11:267-276 '65. (MIRA 18:11)

AZARKOVICH, A.Ye., gornyy inzh.; DONSKOY, M.G., gornyy inzh.;
KURMANOV, M.M., gornyy inzh.

Efficiency of lowering the yield of oversize during primary blasting. Vzryv. rab. no.4:104-111 '60. (MIRA 15:1)

1. Proizvodstvenno-eksperimental'noye upravleniye Vsesoyuznogo tresta po burovym i vzryvnym rabotam.
(Blasting)

DUL'TSEV, P.P., gornyy tekhnik; KURMANOV, M.M., gornyy inzh.

Blasting operations at the "Kamskoye Ust'ye" gypsum mine.
Vzryv. rab. no.4:112-121 '60. (MIRA 15:1)

1. Proizvodstvenno-eksperimental'noye upravleniye Vsesoyuznogo tresta po burovym i vzryvnym rabotam.
(Kamskoye Ust'ye--Gypsum)
(Blasting)

KURMANOV, M.M.; RUBTSOV, V.K.

Improvement of boring and blasting operations and potentialities for cost reduction in quarries. Gor.zhur. no.10:75 O '60. (MIRA 13:9)

1. Podzemno-ekspluatatsionnoye upravleniye Soyuzvzryvproma, Moskva.

(Quarries and quarrying)

KURMANOV, M.M., inzh.

Greater efficiency of boring and blasting operations at the Kamskoye Ust'ye Gypsum Quarry. Vzryv. delo no.45:134-147 '60.
(MIRA 14:1)

(Kamskoye Ust'ye--Gypsum) (Blasting)

[redacted]

Hypertension

Symptoms and diagnosis of initial stages of hypertension. Sov. med. 16 no. [illegible], 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.

SHITIKHIN, V.V.; KURMASHEV, A.M.; BAYUNCHIKOVA, Z.V.; STOLYAROV, A.G., red.izd-va; BYKOVA, V.V., tekhn.red.

[Exploratory directional drilling] Burenie napravlennykh geologorazvedochnykh skvazhin. Moskva, Gosgeoltekhizdat, 1960. 119 p. (MIRA 15:5)

(Boring)

KURMASHEV, A.M.

Calculating a wedge unit in a hole. R.zved. i okh. nedr 29 no.6:35-37 Je '63. (MIRA 18:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metodiki i tekhniki razvedki Gosudarstvennogo geologicheskogo komiteta SSSR.

S/031/61/000/007/001/001
B116/B201

AUTHORS: Yatayev, M., Kurmashov, D., Candidate of Physics and Mathematics

TITLE: A critical case of stability of a stabilized motion according to Lyapunov

PERIODICAL: Akademiya nauk Kazakhskoy SSR. Vestnik, no. 7 (196), 1961, 99-104

TEXT: A study has been made of a system of three differential equations, whose characteristic equation in first approximation has a zero of third order. A group of solutions in first approximation is assumed to correspond to this zero. After some transformations the said system is written as $dx/dt = y$, $dy/dt = z$, $dz/dt = Z(x, y, z)$ (3). $Z(x, y, z)$ is expanded in a powers series of z: $Z(x, y, z) = f_0(x, y) + zf_1(x, y) + z^2 f_2(x, y) + \ldots$. If here $f_0(x, y) \equiv 0$, (3) will have an unstable particular solution: $x = c_1 t + c_2$, $y = c_1$, $z = 0$. Therefore, the undisturbed motion determined by (3) is not stable in this case. If $f_0(x, y) \neq 0$ and

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A critical case of stability of...

$f_0(x, y) = \varphi_0(x) + y\varphi_1(x) + y^2\varphi_2(x) + \ldots$, (3) will acquire the form $dx/dt = y$, $dy/dt = z$, $dz/dt = \varphi_0(x) + y\varphi_1(x) + y^2\varphi_2(x) \ldots + z f_1(x, y) + z^2 f_2(x, y) + \ldots$ (4). The case with $\varphi_0(x) \equiv 0$ is first examined next. The following is assumed: $f_1(x, y) = \psi_0(x) + y\psi_1(x) + y^2\psi_2(x) + \ldots$. The system to be investigated then reads: $dx/dt = y$, $dy/dt = z$, $dz/dt = y\varphi_1(x) + y^2\varphi_2(x) + \ldots + z[\psi_0(x) + y\psi_1(x) + \ldots] + z^2 f_2(x, y) + \ldots$ (5). Undisturbed motion is shown not to be stable if the series of $\varphi_1(x)$ or $\psi_0(x)$ begin with odd powers, or with even powers the coefficients of which are positive. If the series of the same functions begin with even powers with nonpositive coefficients, two cases must be distinguished (since $\varphi_1(x) \not\equiv 0$): 1, $\varphi_1(c) < 0$ and $\psi_0(c) < 0$; 2, $\varphi_1(c) < 0$ and $\psi_0(c) \equiv 0$; the undisturbed motion will be stable in both cases. The case is now examined where, in system (5), $\varphi_1(x) \equiv 0$ and $\psi_0(x) \equiv 0$, and on the basis of theorem I [Abstractor's note: not given here] by G. V. Kamenkov (Ref. 2: Ob

ustoychivosti dvizheniya. Trudy KAI, 1939, no. 9) the undisturbed motion is shown not to be stable. The case is finally examined where, in system (4), $\varphi_0(x) \neq 0$. System (4) is transformed, and the inequality by Hurwitz is written:

$$-\psi_0(c)>0,\ -\varphi_0'(c)>0,\ \psi_0(c)\cdot\varphi_1(c)+\varphi_0'(c)>0 \qquad (14).$$

In this case, the undisturbed motion expressed by (4) will not be stable if 1), the series of even only one of the functions $\psi_0(x)$, $\varphi_0'(x)$ begins with odd powers of x; 2), the series of both functions $\psi_0(x)$, $\varphi_0'(x)$ begin with even powers, but the coefficient of even only one of them is positive with the lowest power of x; 3) while the sum of the lowest powers of the series of $\psi_0(x)$ and $\varphi_1(x)$ is larger than the lowest power of the series of $\varphi_0(x)$ or is equal to it, the coefficients of the lowest powers of x are such that the sign of the last inequality in (14) changes. The undisturbed motion will be stable if the series of the functions $\psi_0(x)$ and $\varphi_0'(x)$ begin with even powers with negative coefficients and are such that the last inequality in (14) is satisfied with an arbitrary and

A critical case of stability of... S/051/61/000/007/001/001
E116/B201

sufficiently small c. K. P. Persidskiy, Academician of the AS Kazakhskaya SSR, is thanked for his assistance. There are 7 Soviet references.

Card 4/4

KURMASHEV, D.

A Contribution to the Critical Cases of Stability of Automatic Control Systems. p. 146

TRANSACTIONS OF THE 2ND REPUBLICAN CONFERENCE ON MATHEMATICS AND MECHANICS (TRUDY VTOROY RESPUBLIKANSKOY KONFERENTSII PO MATEMATIKE I MEKHANIKE), 184 pages, published by the Publishing House of the AS KAZAKH SSR, ALMA-ATA, USSR, 1962

YATAYEV, M.; KURMASHEV, D.

Investigation of critical instances in the stability of steady motions. Vest.AN Kazakh.SSR 18 no.3:54-61 Mr '62. (MIRA 15:3)
(Motion)

KURMASHEV, R.

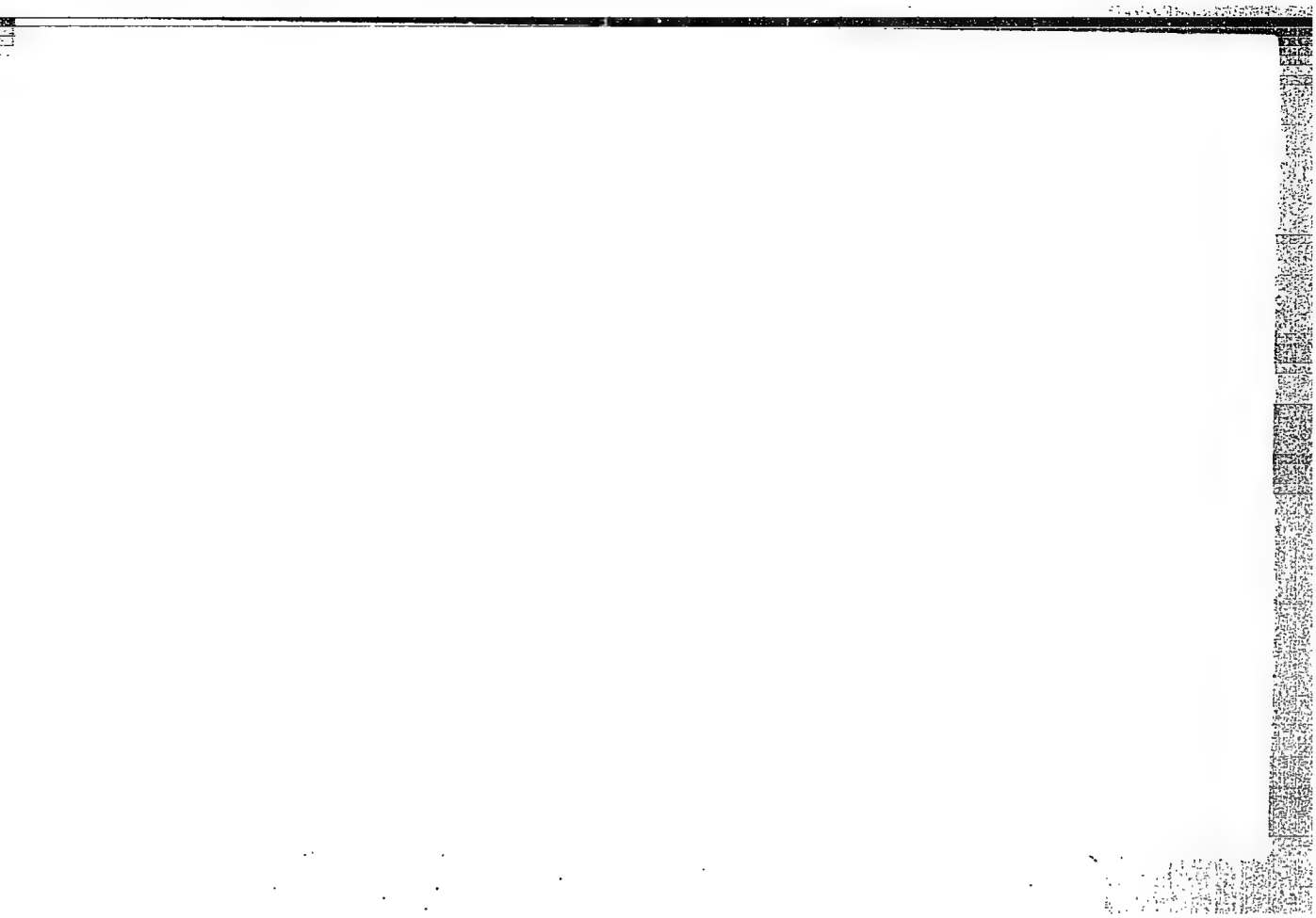
Potentialities for the improvement of agricultural goods transportation. Avt. transp. 42 no. 5:9-10 My '64.
(MIRA 17:5)

1. Upravlyayushchiy Bashkirskim avtotrestom "Sel'khoztrnas".

KURMASHEV, R.

Transportation of ammonia water. Avt. transp. 42 no.11: 11-12 N '64. (MIRA 17:12)

1. Upravlyayushchiy Bashkirskim avtotrestom "Sel'khoztrans."



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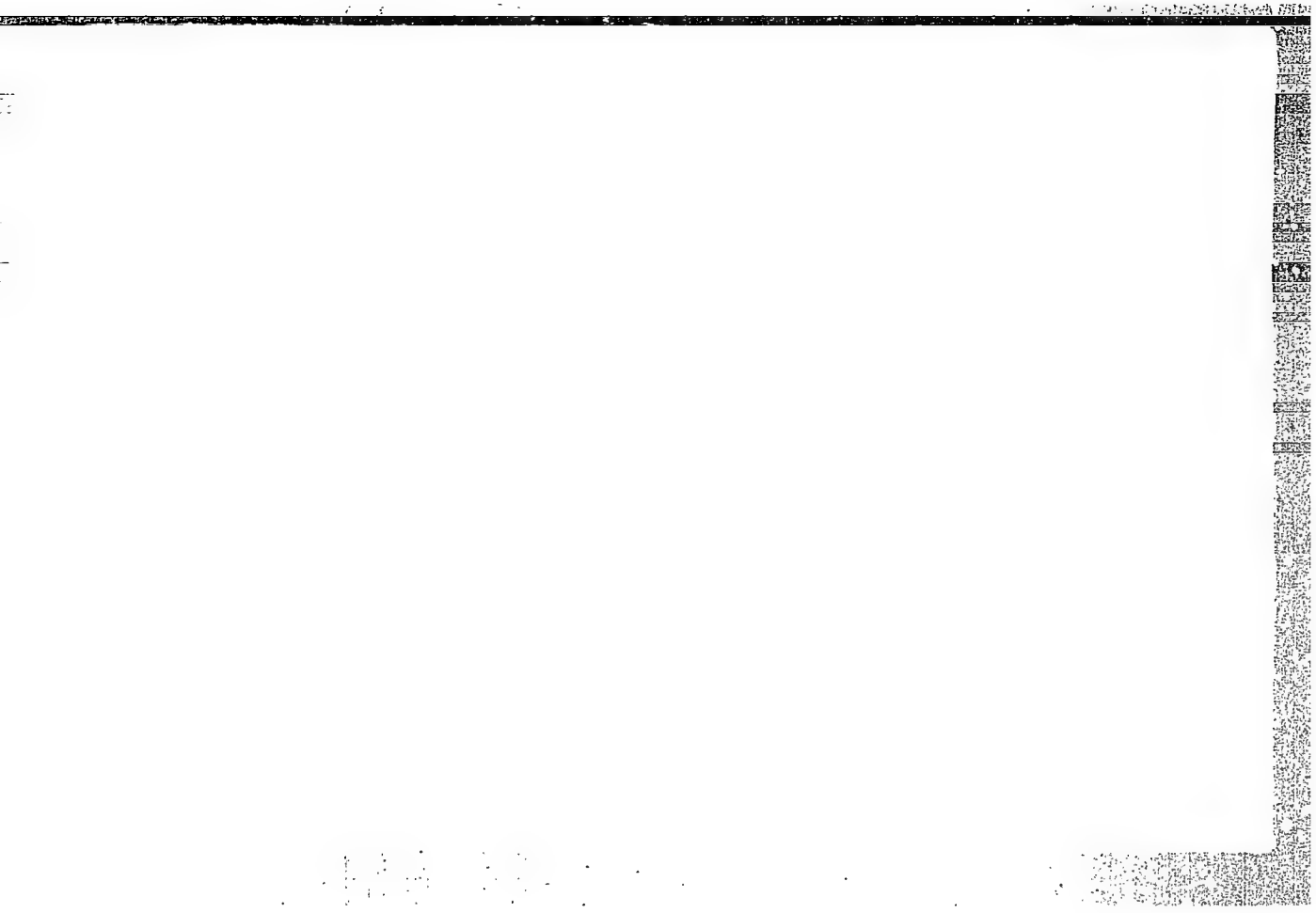

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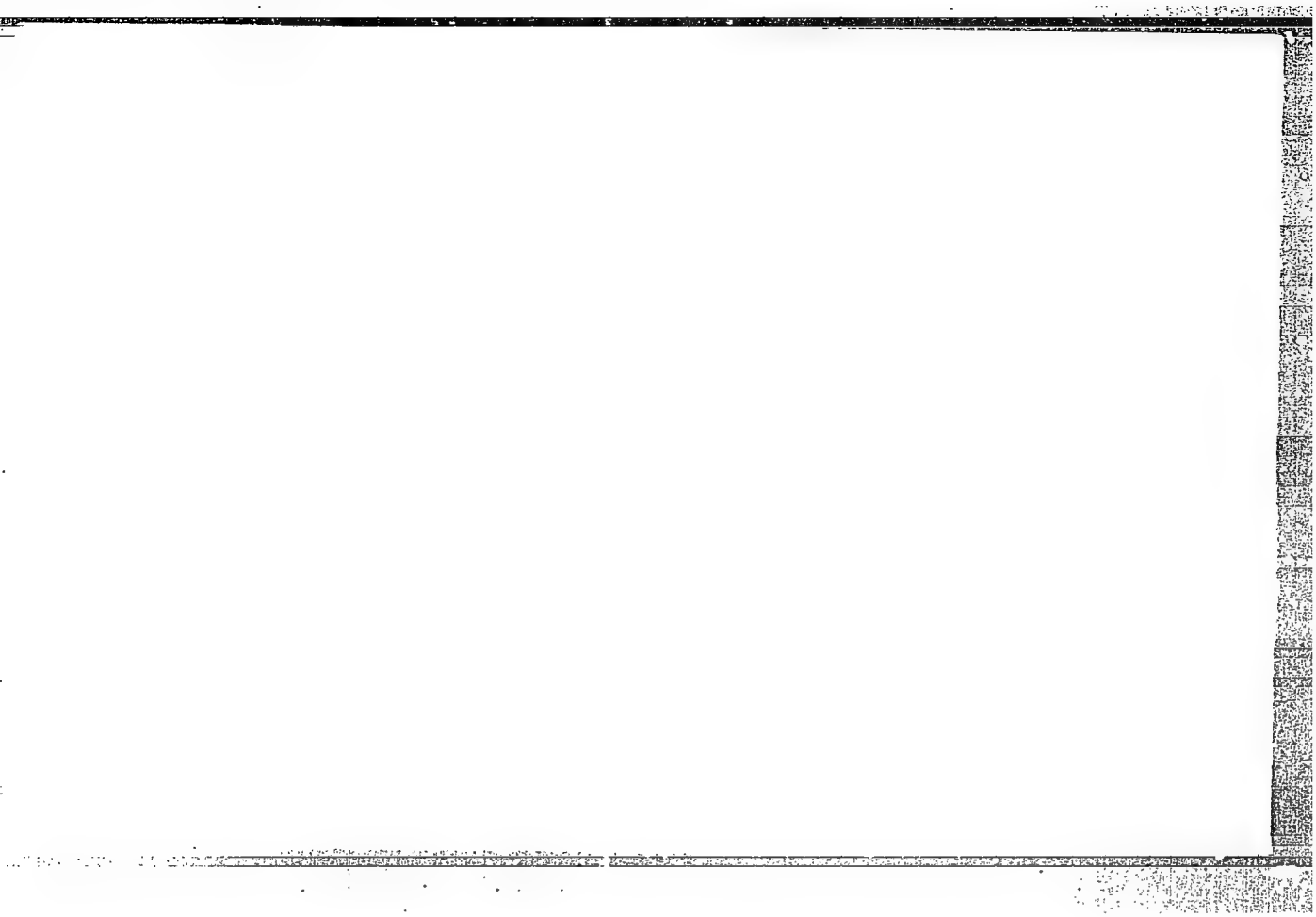

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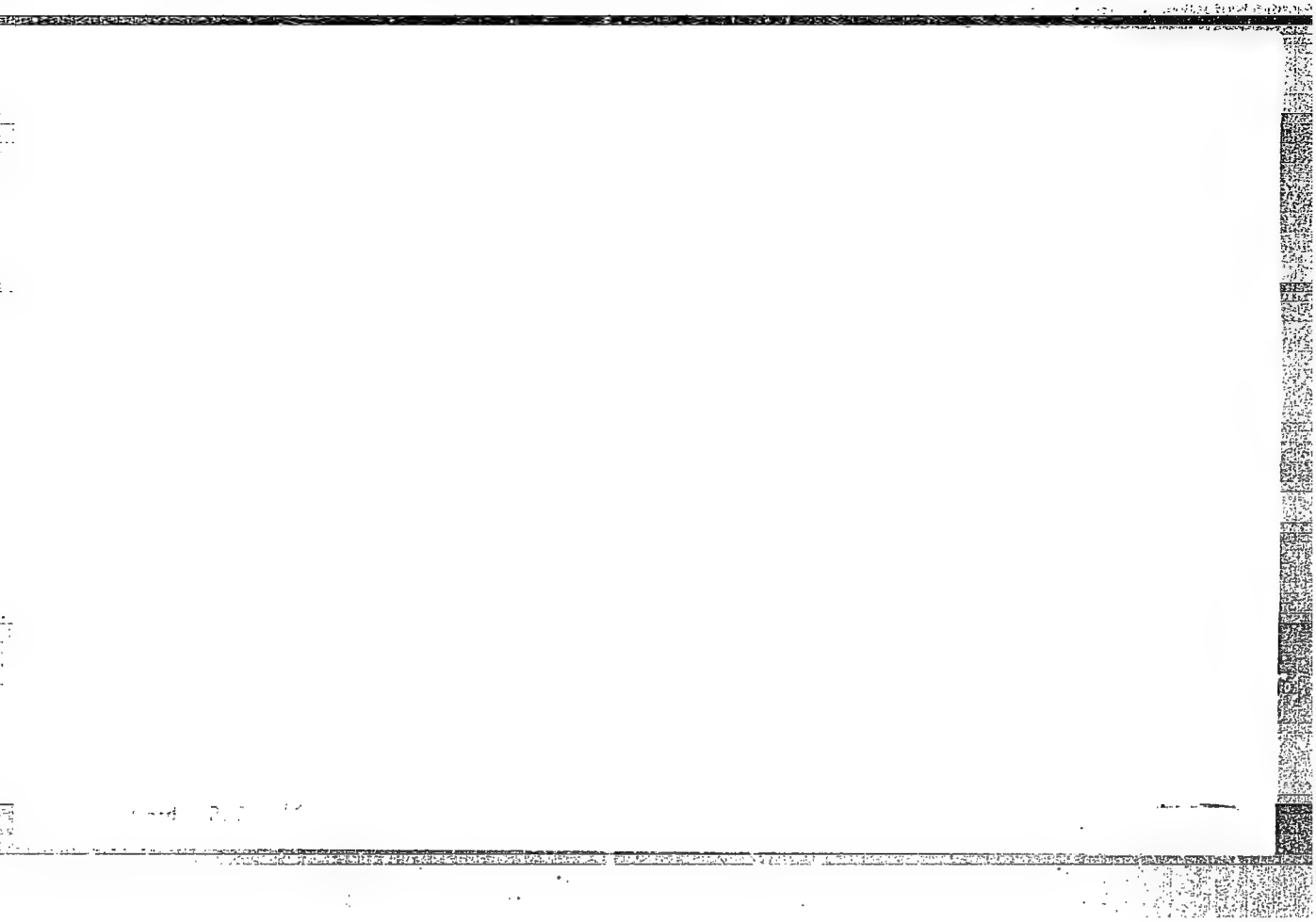

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EWP(1)/EWT(m)/EWP(t) EWI(c) JW/WB

ACC NR: AP6006760 SOURCE CODE: UR/0185/66/011/001/0045/0048

AUTHORS: Drozdov, V. O. (Drozdov, V. A.); Kurmashev, Sh. D.; Rvachov, O. L. (Rvachev, A. L.)

ORG: Odessa Polytechnic Institute (Odes'kyy politekhnichnyy instytut)

TITLE: Infrared quenching of the photovoltaic effect in cadmium sulfide

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 11, no. 1, 1966, 45-48

TOPIC TAGS: cadmium sulfide, photoconductivity, ir photoconductivity, ir photoconductor, luminescence quenching, crystal lattice structure, spectral sensitivity

ABSTRACT: The authors investigate the effect of infrared light on the photovoltaic effect in cadmium sulfide polycrystalline thin-film photoelements obtained by thermal evaporation of CdS powder in vacuum onto a copper film (substrate temperature 200C). The thickness of the CdS film was 2 -- 5 μ, the specific conductivity was 0.1 -- 1

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ohm-cm, and the active area of the element was 1 -- 2 cm^2. A monochromator (UM-2) or filters were used to monochromatize the light from an incandescent lamp. Two maxima are observed on the spectral sensitivity curve at 600 and 660 nm. The summary action of the exciting light in the region of 600 nm and of the infrared illumination between 0.8 -- 1.5 μ is not additive. The stimulating effect of infrared illumination at low intensities disappears gradually with increasing illumination and is replaced by infrared quenching of the photovoltaic effect. In the photovoltaic effect there is, unlike in the case of photoconductivity, only one maximum of infrared stimulation or quenching at 0.85 μ. The model of double optical transitions, first proposed to explain some features of the photoconductivity of CdS (Izv. AN SSSR, ser. fiz. v. 16, 81, 1952), is used to explain the experimental data. The absence of quenching at 1.4 μ could also be due to the absence of interstitial sulfur atoms in the films investigated. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 16Mar65/ ORIG REF: 005/ OTH REF: 003

Card 2/2 mjs

L 36935-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6023416 SOURCE CODE: UR/0139/66/000/003/0080/0082

AUTHOR: Drozdov, V. A.; Kurmashev, Sh. D.; Rvachev, A. L.

ORG: Odessa Polytechnic Institute (Odesskiy politekhnicheskiy institut)

TITLE: On the short-wave sensitivity of photovoltaic elements on the basis of cadmium sulfide

SOURCE: IVUZ. Fizika, no. 3, 1966, 80-82

TOPIC TAGS: cadmium sulfide, photoelectric cell, photoelectric effect, oxygen, photovoltaic effect, vacuum chamber, high vacuum, radio wave

ABSTRACT: If a high vacuum is maintained during the preparation of a CdS—Cu photovoltaic element, the back-irradiated cell will exhibit a marked sensitivity in the 400—500 μm range, with a supplementary maximum at 420 μm. This short-wave sensitivity will disappear and will be replaced by a shift toward the infrared region if the cell is allowed to stay in contact with atmospheric vapors and gases. The above observations were made with the use of a photovoltaic element obtained by the thermal evaporation of cadmium sulphide onto a copper-clad glass substrate and covered with a semitransparent aluminum film. The whole process was performed in a vacuum chamber at 10^{-5} mm Hg. At frontal illumination of the vacuum-prepared cell, through a semitransparent copper film, the element showed a similar sensitivity to 400—500 μm wavelengths. The authors attribute the phenomenon to 1) the damping of short-wave CdS sensitivity caused by water vapor, which increases the rate of surface recombination of carriers, and 2) an increase of long-wave sensitivity caused by the pene-

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L 36935-66

ACC NR: AP6023416

tration of oxygen into the CdS lattice. Since the glass substrate and the copper film protect the semiconductor from atmospheric elements better than the aluminum film, no shift of sensitivity was observed when the frontally illuminated vacuum-produced cell was kept in contact with air. Orig. art. has: 3 figures. [ZL]

SUB CODE: 20/ SUBM DATE: 06Aug64/ ORIG REF: 001/ OTH REF: 011/ ATD PRESS: 5038

Card 2/2

KURMASHEV, S.Z., gornyy inzh.

Construction and exploitation of roads in pits of the Ufaley Plant. Gor. zhur. no.6:18-19 Je '62. (MIRA 15:11)

1. Ufaleyskiy nikelevyy zavod.
(Mine haulage)
(Roads)

KURMAYEV, A.

Role of the State Bank in developing the economy of the Bashkir A.S.S.R. Den.i kred. 17 no.6:36-42 Je '59. (MIRA 12:10)
(Bashkiria--Banks and banking)

KURMAYEV, A.

Our practice in carrying out the payment and receiving plan. Den. i kred. 18 no.10:44-48 O '60. (MIRA 13:10)

1. Upravlyayushchiy Bashkirskoy respublikanskoy kontoroy Gosbanka.
(Bashkiria--Banks and banking)

KURMAYEV, A.; KOTEL'NIKOV, I.; SLEPININ, V.

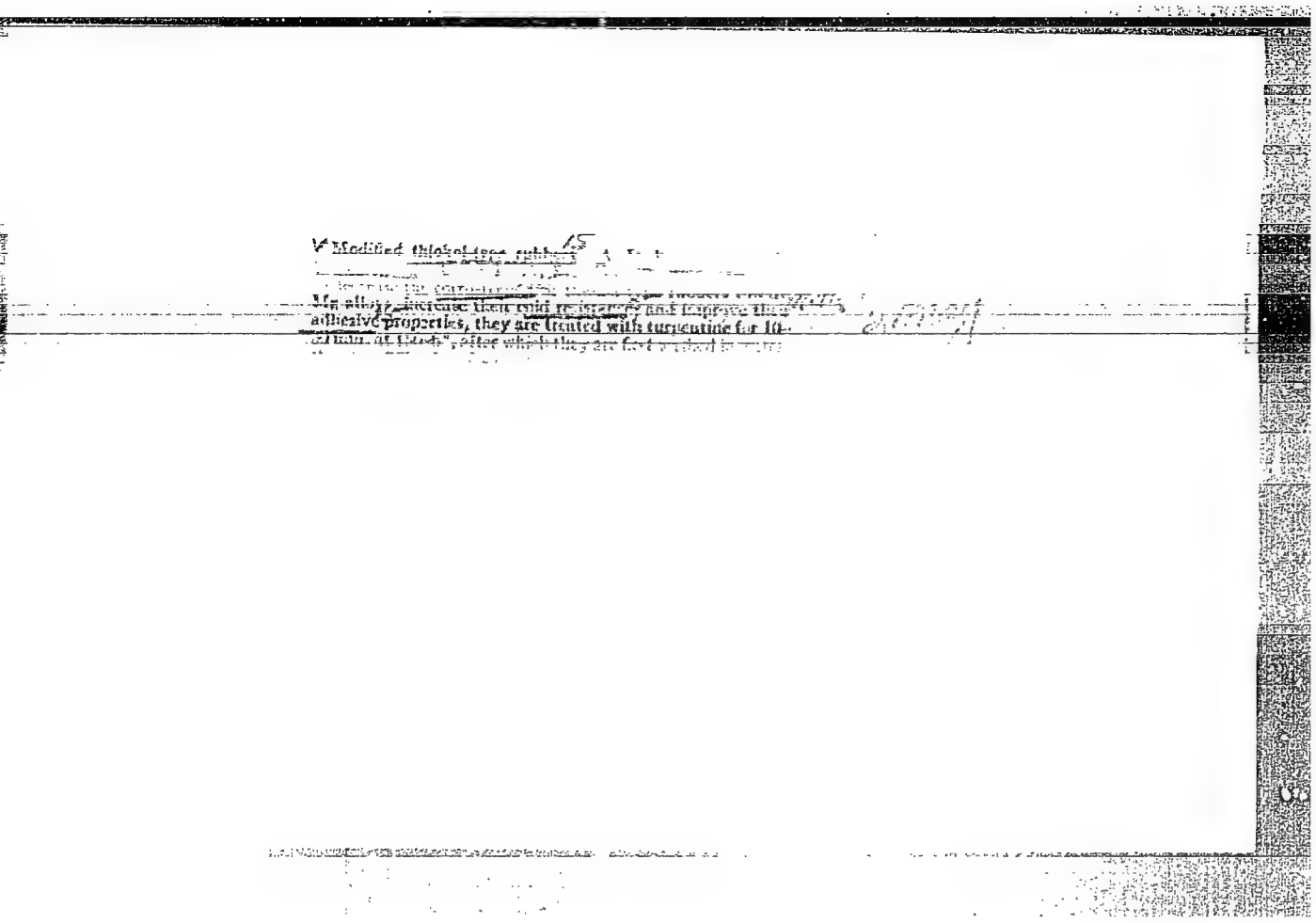
Work of State Bank enterprises under the new conditions. Den. i kred. 20 no.6:34-38 Je '62. (MIRA 15:6)

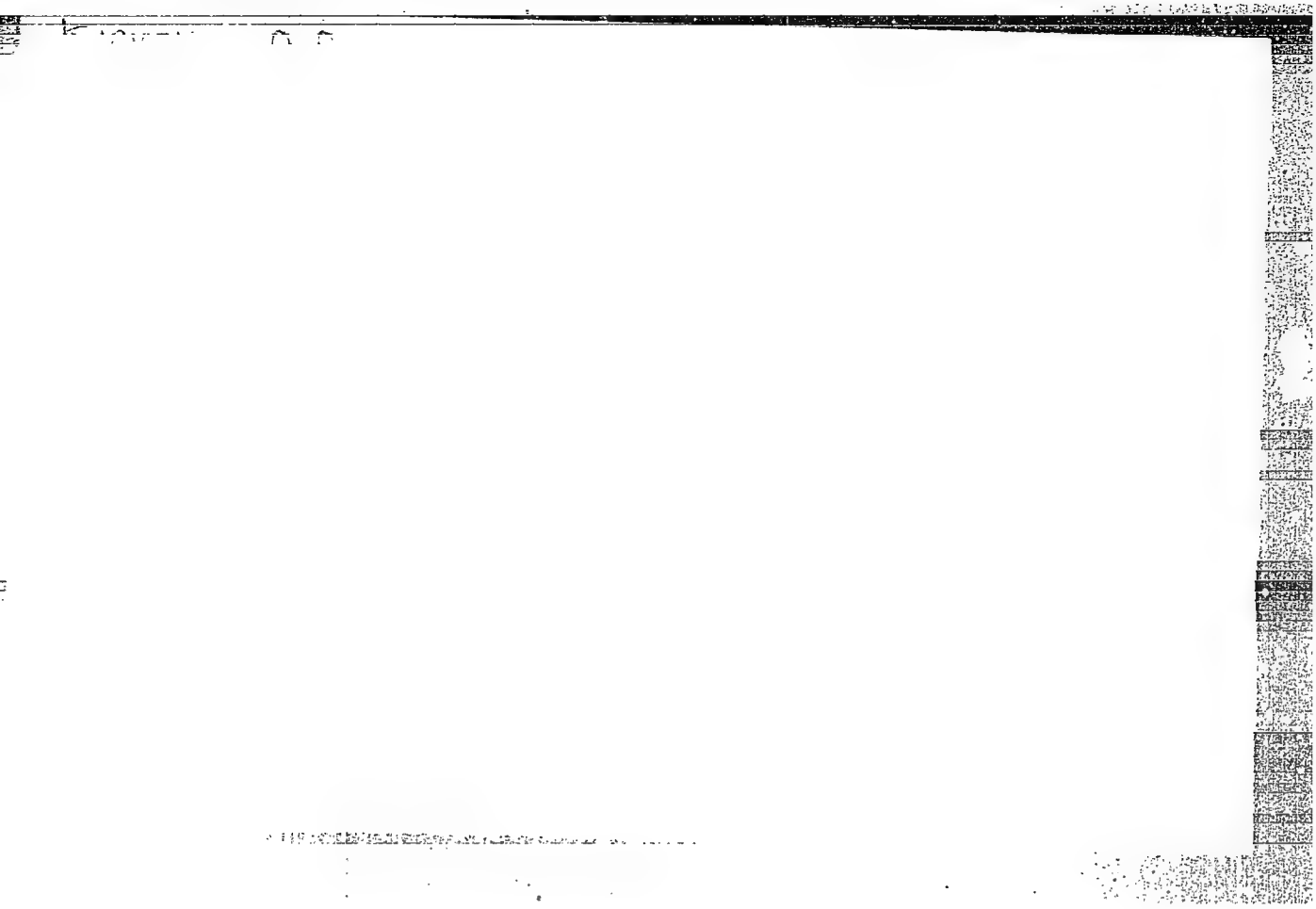
1. Upravlyayushchiy Bashkirskoy respublikanskoy kontoroy Gosudarstvennogo banka (for Kurmayev). 2. Upravlyayushchiy Omskoy oblastnoy kontoroy gosudarstvennogo banka (for Kotel'nikov). 3. Upravlyayushchiy Udmurtskoy respublikanskoy kontoroy gosudarstvennogo banka (for Slepinin).
(Agriculture--Finance) (Banks and banking)

KURMAYEV, A.

Currency cicrlation in Bashkiria. Den. i kred. 20 no.10:56-50 O '62.
(MIRA 15:12)

1. Upravlyayushchiy Bashkirskoy respublikanskoy kontory Gosbanka.
(Bashkiria—Money) (Bashkiria—Commerce)





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SOV/81-59-12-44315

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 12, p 497 (USSR)

AUTHORS: Kuznetsov, Ye., Kurmayev, A. D

TITLE: Modified Thiokols and Their Application

PERIODICAL: Tekhn.-ekon. byul. Sovnarkhoz Tatarsk. ekon. adm. r-na, 1958, Nr 5, pp 5-6

ABSTRACT: Thiokols are extracted with turpentine for eliminating a part of S, they are washed with water, soda solution, then again with water until the color disappears, then they are dried for 7 - 8 hours at 60 - 70°C. Non-ferrous metals do not affect modified thiokols (MT), they are elastic and frost-resistant. Liquid MT with the addition of diphenylguanidine and metal peroxides or oxides can be used for vulcanizing pastes. Varnishes and paints of MT are employed for coating the metals. Liquid MT produces a high-quality paste maintaining its mobility to -80°C, swelling in gasoline and kerosene by $\leq$ 0.1 - 0.2%; it does not swell in water, glycerol and alcohol. Mixtures of phosphoro-organic thiokols with epoxide resins are applied as glues and thickeners operating at temperatures from -80 to +250°C. Phosphoro-organic MT combine well with silox-

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Modified Thiokols and Their Application

67998
SOV/81-59-12-44315

ane rubbers lending them adhesiveness and frost-resistance. The addition of 15 - 20% MT to rubber mixtures increases the oil-gasoline resistance, the physical-chemical indices and extends considerably the service time of vulcanized rubber.

I. Pil'menshteyn

Card 2/2

15-8360

30223

S/081/61/000/019/072/085
B117/B110

AUTHORS: Kurmayev, A. D., Petrov, O. L.

TITLE: Antifriction material ЭТС-52 (ETS-52) on the basis of epoxy resin and thiocol

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 19, 1961, 481, abstract 19P40 (Tr. Kazansk. khim.-tekhnol. in-ta, no. 29, 1960, 115 - 120)

TEXT: A new antifriction material, ETS-52, is proposed. It was obtained from 100 g of epoxy resin ЭД-6 (ED-6), 25 g of low-molecular thiocol ЛП-2 (LP-2), 10 g of dibutyl phthalate, 10 g of polyethylene polyamine, 100 - 200 g of marshalite, 50 - 100 g of second-quality graphite of the type СХАН (SKhAN). After the components were mixed a homogeneous mass was obtained, which was filled into various molds for hardening. At ~20°C hardening takes 5 - 6 hours, and at 60° - 70°C it takes 1.5 - 2 hours. For comparison the finished samples, together with bronze samples (БРАЖ 9-4 (BRAZh 9-4)), were subjected, to comparative frictional tests lasting

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30223

S/081/61/000/019/072/085
B117/B110

Antifriction material ЭТС -52 (ETS-52)...

5 minutes without lubrication, using a steel disk hardened to 160 kg/mm^2 (specific pressure 10 kg/cm^2, rate 0.63 m/sec, 600 rpm). In all the tests, the bronze samples suffered greater losses (0.0162 as against 0.0014 with cooling and 0.0041 without cooling). ETS-52 possesses good physical and mechanical properties; its wear resistance is 5-6 times higher than that of bronze; specific gravity 1.35 - 1.52; frictional coefficient on polished steel, without lubrication, 0.020; it does not swell in gasoline. ETS-52 absorbs 1/10 - 1/30 of the amount of water absorbed by polyamides (0.01% within 24 hours at 20°C). Its thermal conductivity and hardness are higher than in polyamides. The strong adhesion of ETS-52 to metal makes it possible to take it as a basis for the creation of bimetallic products. A disadvantage of ETS-52 is its low tensile and static bending strength in comparison with polyamides. [Abstracter's note: Complete translation.]

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S/191/61/000/001/010/015
B101/B205

AUTHORS: Petrov, O. L., Kurmayev, A. D.

TITLE: Antifriction compositions on the basis of thiocols and epoxy resins

PERIODICAL: Plasticheskiye massy, no. 1, 1961, 46-48

TEXT: In view of the fact that: 1) epoxy resins can be rendered unsoluble and unswelling in petroleum products by adding thiocols; 2) such compositions have a high bending strength and are water-repellent, the application of such compositions as antifriction material has been studied. High-molecular thiocols of the types "A" ("A"), "ДА" ("DA"), and "ФТ-1" ("FT-1") easily combine with epoxy resins (ER) when slightly heated. Low-molecular thiocols of the type "ЖТ" ("LP") combine with ER at room temperature:

$$2R'\text{-}CH_2\text{-}\underset{\diagdown O \diagup}{CH}\text{-}CH_2 + 2RSH \rightarrow -R'\text{-}CH_2\text{-}\underset{OH}{CH}\text{-}CH_2\text{-}R\text{-}S\text{-}S\text{-}R\text{-}\ldots$$

(R: thiocol radical; R': ER radical). The results of abrasion tests on a lathe were compared with БрАЖ9-4 (BrAZh9-4) bronze. The tests were made with a steel disk (maximum strength: 160 kg/mm^2) without lubrication;

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Antifriction compositions on...

duration: 5 min; specific pressure: 10 kg/cm^2; rate: 0.63 m/sec. With the use of compressed air, the steel disk had a temperature of 70-100°C, and without compressed air, 170-210°C. The composition with the best properties has been designated ЭТС-52 (ETS-52). Its weight loss by abrasion was 4.1 mg without compressed air, and 1.4 mg with compressed air (bronze: 16.2 mg). Abrasion caused neither piercing noises nor smoke. The following physico-mechanical data are presented for this composition: limit of strength (kg/cm^2) on elongation: 366.0; on compression: 1009.4; on bending: 380.0; specific gravity: 1.43 g/cm^3; coefficient of friction on steel without lubrication: 0 020; no swelling in gasoline at 20°C for 24 hr; in transformer oil, swelling by 0.0007%; water adsorption at 20°C for 24 hr: 0.01%; at boiling point after 1 hr: 0.1%. ETS-52 has only 1/10-1/30 of the hygroscopicity of polyamides, but is harder, can be used without lubrication, and has a lower coefficient of friction. On account of its good adhesiveness, bimetallic products may be obtained by the following method: Thiocol, a plasticizer, a hardener, and a filler are successively added to slightly heated ER, then the mass is mixed and poured into molds for hardening. Duration of hardening: 1.5-6 hr. Neither H_2S nor mercaptanes are formed. Bushes for

Antifriction compositions on...

the gear box of a ТС-135 (TS-135) lathe and friction bearings for the cantilever of a "Wanderer" horizontal milling machine were made from LTS-52. The following conditions are given for the treatment of the non-ferrous alloy Д16Т (D16T), 30ХГСА (ZOKhGSA) steel, and В95Т (V95T): feed: 36-85 mm/min; speed: 80-200/min. The test results obtained for three bushes of the TS-135 lathe are illustrated in Fig.4. There are 4 figures. and 4 Soviet-bloc references.

Legend to Fig.4: a) Duration of test, months; b) increase in internal diameter.

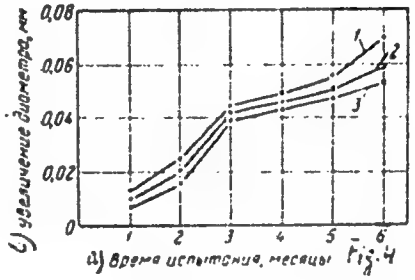

Fig.4

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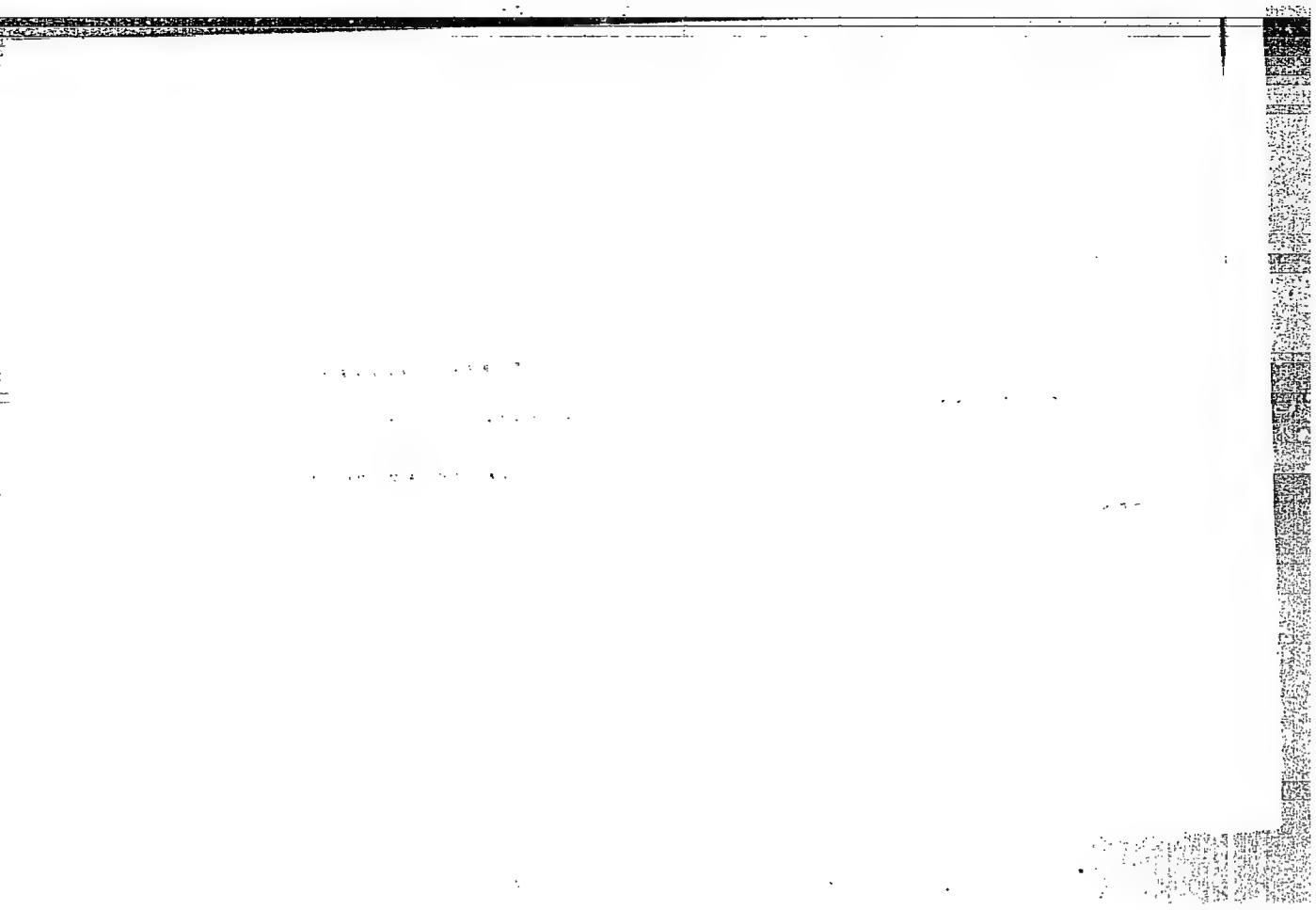
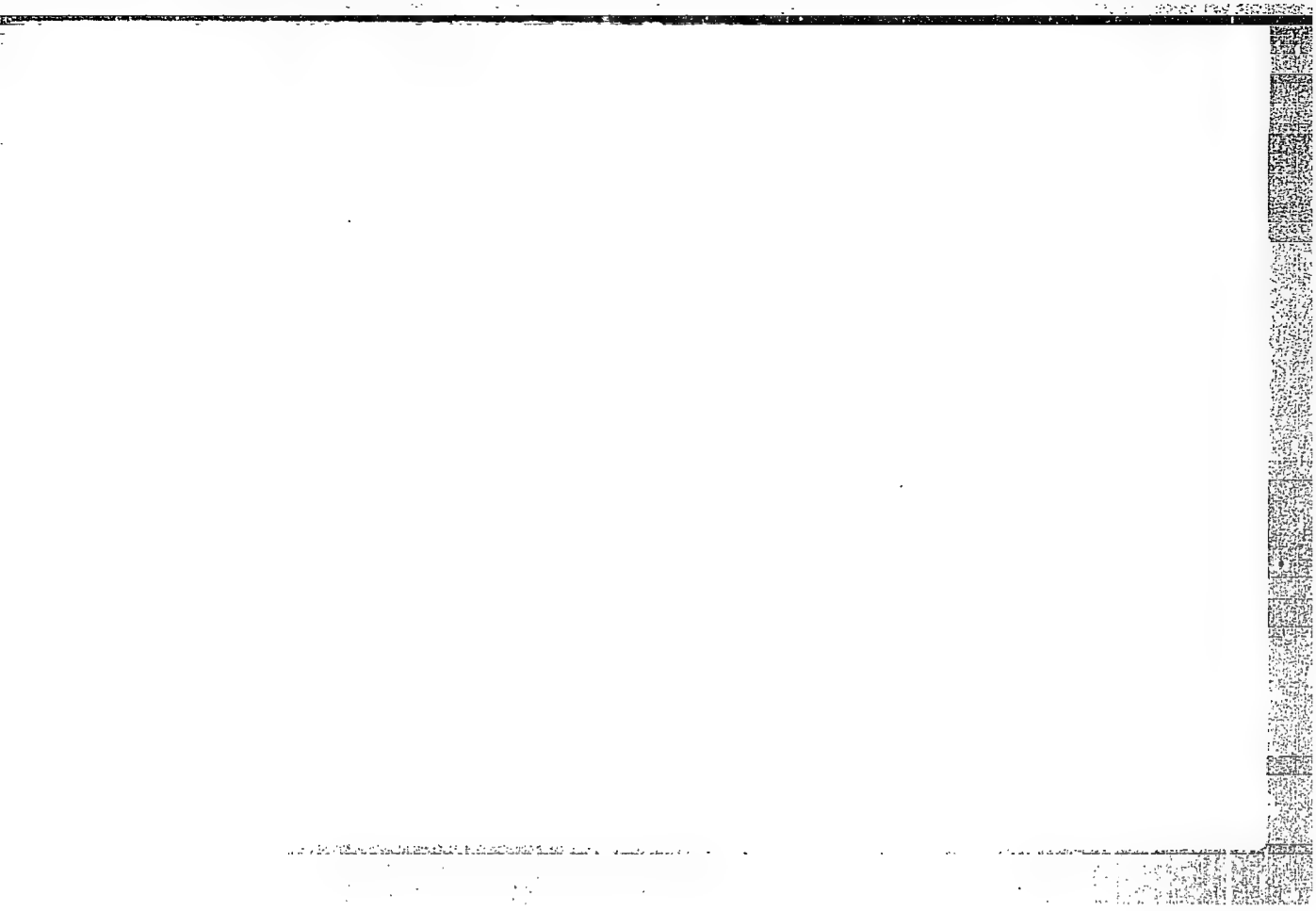
KURMAYEV, A.D.; BATALOV, V.S.

Plastic composition for taking molds of threaded joints. Plast. massy no.5:66 '62. (MIRA 15:4)

(Plastics)





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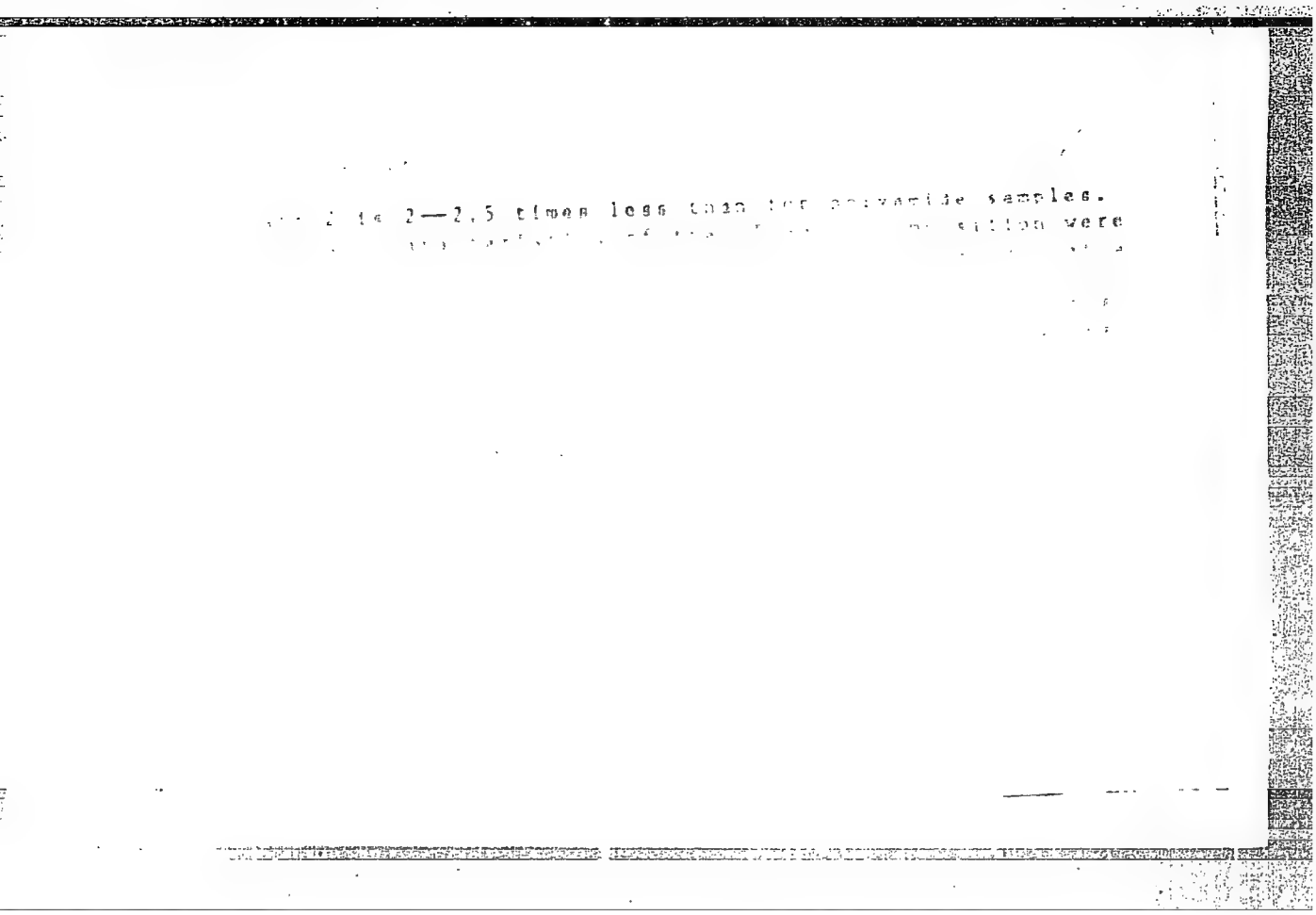

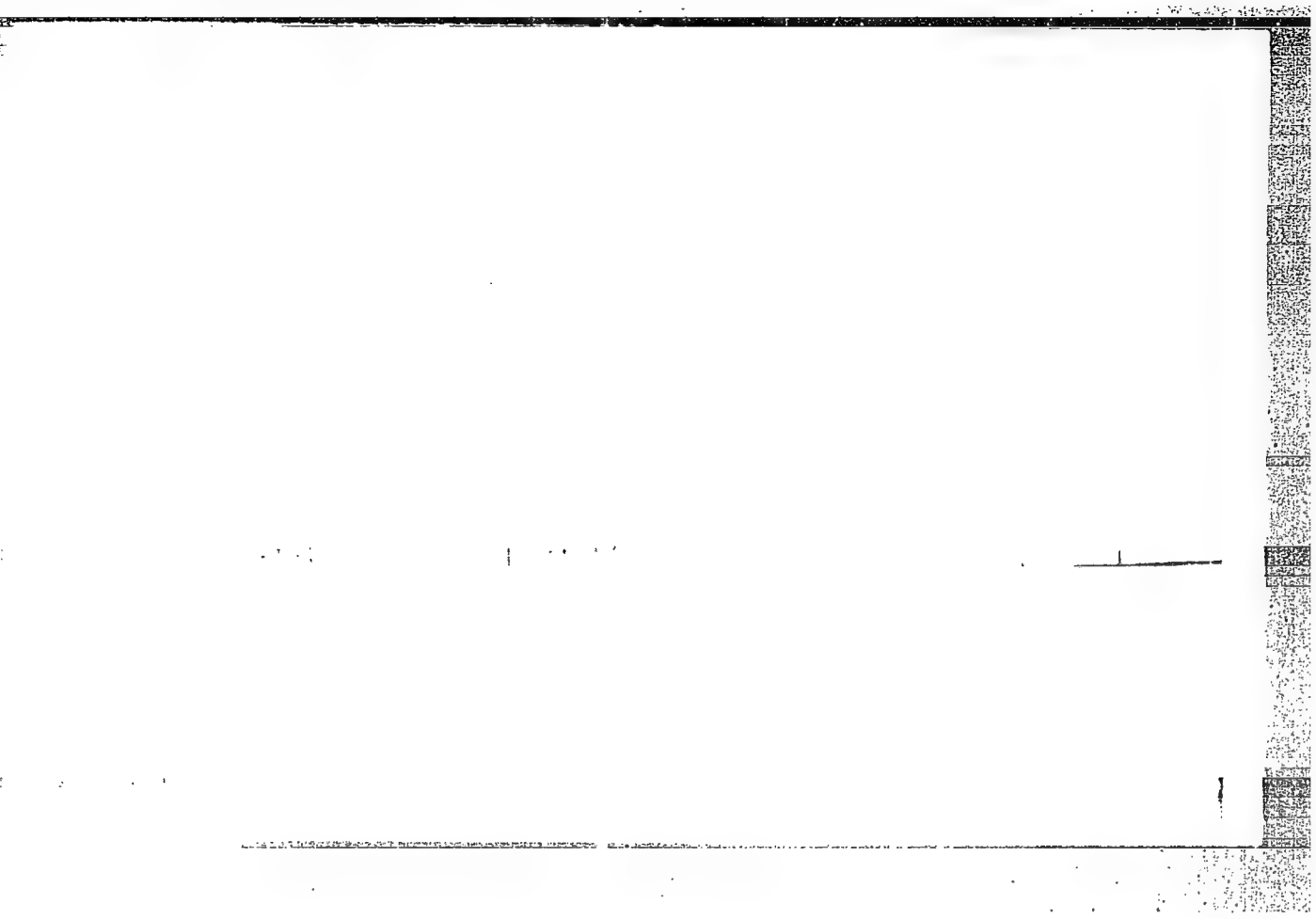

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KURMAYEV, A.D.

Antifriction composition based on PT-1 organophosphorous thiokol and epoxy resins. Plast. massy no.8:33-36 '64.
(MIRA 17:12)

L 13121-66 EWT(m)/T/EWP(t)/EWP(b)/EWA(c) JD

ACC NR: AP5018855 SOURCE CODE: UR/0126/65/020/001/0038/0043

AUTHOR: Kurmayev, E. Z.; Men'shikov, A. Z.; Anishchenko, R. I.; Nemnonov, S. A.

ORG: Institute of Physics of Metals AN SSSR (Institut fiziki metallov AN SSSR)

TITLE: The question of determining the number of 3d electrons in transition metals of the iron group on the basis of coherent and incoherent scattering of x ray beams

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 1, 1965, 38-43

TOPIC TAGS: transition element, coherent scattering, incoherent scattering, secondary emission

ABSTRACT: Experimental and theoretical work on the study of x ray structure factors of pure metals and alloys is surveyed. To check the reliability of the Kuriyma [Kuriyma H., Josoya S. a. Suzuki T. *Phys. Rev.*, 1963, 130, 898] method, the absolute intensity of incoherent scattering for aluminum was measured and plotted. However, the Compton scattering in the transition metals of the iron group could not be measured by this method because of secondary radiation in both sample and absorber. It

Card 1/2 UDC: 539.26

L 13121-66

ACC NR: AP5018855

is considered that it is not possible to obtain reliable information on the condition of 3d electrons in transition metals of the iron group with present methods. Orig. art. has: 4 figures.

SUB CODE: 18,11/ SUBM DATE: 21Jul64/ ORIG REF: 011/ OTH REF: 027

Card 2/2 HW

KUMAYEV, F. A., BELYAH, L. G., BETIN, V. T., and [illegible], G. I.

"Moisture Control of a Furnace Charge by the Neutron Method"

paper presented at the All-Union Seminar on the Application of Radioactive Isotopes in Measurements and Instrument Building, Frunze (Kirgiz SSR), June 1961)

So: Atomnaya Energiya, Vol 11, No 5, Nov 61, pp 468-470

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Mechanism of action of extracardiac nerve on the heart in warm blooded animals. Tr. Vsesoius. obsh. fiziol. no. 1:85-86 1952. (CLML 24:1)

1. Delivered 15 April 1950, Kazan'.

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Mechanism of the reflex influence of sympathetic nerves on the heart. Uch.zap.Kaz.un. 115 no.10:77-78 '55. (MLRA 10:5)
(Vagus nerve)
(Heart)

KURMAYEV, O.D.; MAKALEYEV, I.Sh.

Effect of direct current poles on the conductivity of myocardium altered by necrotic tissue. Bul. eksp. biol. i med. 56 no.7: 44-46 Jl '63 (MIRA 17:3)

1. Iz laboratorii fiziologii (zav. - prof. O.D. Kurmayev) Kazanskogo pedagogicheskogo instituta. Predstavlena deystvitel'nym chlenom AMN SSSR A.V. Lebedinskim.

REZNIKOV, I.L.; MEZUKLADNIKOV, A.B.; UKSHE, E.S.; GLADYSHEV, A.F.; ZEZYANOV, S.P.; KURMAYEV, R.Kh.

Formation of phosgene during the chlorination of titanium slag in electric shaft furnaces and chlorinators. Titan i ego splavy no.9: 140-146 '63. (MIRA 16:9)
(Titanium—Metallurgy) (Chlorination)
(Phosgene)

AMIROVA, S.A.; PECHKOVSKIY, V.V.; KURMAYEV, R.Kh.

Vanadium recovery from converter slags. TSvet. met. 36 no.12:57-60 D '63. (MIRA 17:2)

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Recovery of vanadium from converter slags by chlorination of the melt. Izv. vys. ucheb. zav.; tsvet. met. 6 no.4:102-109 '63. (MIRA 16:8)

1. Permskiy politekhnicheskiy institut, kafedra tekhnologii neorganicheskikh veshchestv.

(Vanadium--Metallurgy) (Chlorination)

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Solubility of vanadium trioxide in fused sodium and potassium chlorides. Zhur. neorg. khim. 9 no.5:1229-1231 My '64. (MIRA 17:9)

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Chemical interactions during the chlorination of vanadium trioxide. Izv. vys. ucheb. zav., tsvet. met. 7 no.5:77-81 '64
(MIRA 18:1)

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AMIROVA, S.A.; PECHKOVSKIY, V.V.; KURMAYEV, R.Kh.

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